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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1991

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

SECOND SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 1991

TUESDAY, FEBRUARY 6, 1990.

DEPARTMENT OF THE ARMY

ASSISTANT SECRETARY OF THE ARMY FOR CIVIL WORKS AND CHIEF OF ENGINEERS

WITNESSES

ROBERT W. PAGE, ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)
JOHN DOYLE, PRINCIPAL DEPUTY ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)
LT. GEN. HENRY J. HATCH, CHIEF, CORPS OF ENGINEERS
MAJ. GEN. PATRICK J. KELLY, DIRECTOR OF CIVIL WORKS
DON CLUFF, CHIEF, PROGRAMS DIVISION, DIRECTORATE OF CIVIL WORKS

OPENING REMARKS

Mr. BEVILL. The committee will come to order.

We are delighted to have you with us this morning, Mr. Secretary, and also our good friends, the Chief and Director of Civil Works.

This, as you know, is the beginning of another year. We are once again faced with some real challenges. We have the Gramm-Rudman-Hollings law that is going to require us to hold the deficit down, not to $100 billion but to $64 billion. That is not going to be easy, but I am optimistic that we can get the job done.

We do have in the budget recommendations, I notice, two initiatives. One is for environmental maintenance and restoration, $52.9 million, and the other is for infrastructure improvements, $7.9 million. I note that there are no new reconnaissance studies and no new construction starts. We had 32 new construction starts last year. The year before that, we didn't have any.

So, we are back to no construction starts again. And, of course, whether there will be any new starts, depends on the circumstances. It will depend on the allocation this subcommittee receives.

Certainly the Administration's recommendation is no new starts this year and, most likely, that is what we will have to adopt, whether we wish to or not, because of limited funds.

I would like to point out, because so much is being said about it this year and we will hear more about it this year than ever, the importance of protecting the environment. We are all in favor of that. Every member of this panel, I know, has proven that many

times. And I know the U.S. Army Corps of Engineers is in favor of protecting the environment.

We are going to be competing, of course, in the allocation process with 12 other Appropriations Subcommittees, and they have the same problems that we have, insufficient funds to do all those things that really ought to be done. But, I am optimistic that we will be able to handle these challenges like we have before. And so, Mr. Secretary, we will be happy to hear from you now, and you may proceed as you wish.

SUMMARY STATEMENT OF ROBERT W. PAGE, ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

Mr. PAGE. Thank you very much, Mr. Chairman.

Yes, these hearings come around quite often now.

Mr. BEVILL. They say when you get old, time goes by pretty fast, Mr. Secretary.

Mr. PAGE. I am pleased to be testifying before this subcommittee today on the fiscal year 1991 budget for the Civil Works Program. Assisting me are the Principal Deputy Assistant Secretary, John Doyle, who has been here many times, and you know the Chief of Engineers, Lieutenant General Henry J. Hatch, and the Director of Civil Works, Major General Pat Kelly. The last time you saw him he had one star, and now he has two.

Mr. BEVILL. I have already asked him if that is going to cause him to quit speaking to us ordinary people.

Mr. PAGE. But we are pleased to see that. Then we have the Chief of the Civil Works Programs Division, Don Cluff, who has been working closely with your staff.

With your permission, I would like to proceed by presenting a summary of my statement, and I ask that General Hatch be permitted to summarize his statement. We would then be available to answer any and all of the subcommittee's questions. The complete statements will be submitted for the record with your approval, sir.

OVERVIEW OF THE PRESIDENT'S 1991 CIVIL WORKS BUDGET

The proposed 1991 budget for the civil works program totals $3.54 billion, an 8-percent increase over the post-sequestration level for 1990. This is a sound and responsible budget reflecting the Administration's continued support for the development of the Nation's water resources for commercial navigation and flood control, and for efficient management of navigation systems and reservoirs.

As mentioned by the Chairman, the budget contains a number of important initiatives which will mitigate environmental losses at constructed projects and address innovative approaches for dealing with the Nation's infrastructure. Notable among these are the Columbia River Juvenile Fish Mitigation, the Tennessee-Tombigbee Waterway Wildlife Mitigation, and the Magnetic Levitation Transportation Pilot Program.

ITEMS OF SPECIAL INTEREST

Before I come to specifics on the 1991 budget, a few items deserve mention.

1990 NEW STARTS AND OTHER NEW WORK

The large number of projects and studies funded for initiation in FY 1990 constitutes a challenging new work program that places substantial demands on 1991 resources, both in dollars and personnel. New work includes more than 30 new construction starts, 63 new reconnaissance studies, and 41 pre-construction engineering and design projects. Even without additional work, vigorous management controls must be applied to bring in the funded projects within their individual budgets and schedules.

To meet this challenge, significant changes in management procedures have been put in place. You are well familiar with those. We discussed them with you many times; they include the assignment of a single manager to handle a project from the study phase through construction; concurrent reviews and reports; preparation of a thorough cost estimate early in the planning stage; and ensuring that project managers have sufficient authority to justify their accountability for results.

LOCAL COOPERATION AGREEMENTS

Since cost-sharing reforms went into effect in November of 1986, LCAs have been signed with sponsors of 94 projects. The total investment represented by these 94 LCAs is $4.3 billion, of which more than 35 percent is to be provided by non-Federal sponsors.

CORPS RESPONSE TO DISASTERS

The past year saw a series of events that challenged the Corps' ability to respond to disasters. The Corps met the disasters admirably. All Corps employees appreciate your generous remarks recognizing their efforts. And we certainly do. They were very, very appropriate and very kind of you.

"EXXON VALDEZ" OIL SPILL

When the Exxon Valdez grounded on March 24, 1989, it created a crisis that the oil industry and the Nation were not prepared to handle. The Corps provided two sea-going hopper dredges which were successful in skimming 6,900 barrels of oil out of a total of 51,000 barrels recovered. The crews also provided technical support on-site.

To improve its ability to respond to oil spills the Corps has initiated several actions. These include an engineering study of hoppers to enhance all recovery operations; a survey of industry's capability to respond; use of remote sensing to locate and track oil; clean-up coordination with other agencies, and management strategies to ensure a timely and cost-effective response by the Corps. I assure you that these are active studies, and we are actively participating in coordinating this effort.

HURRICANE HUGO

Corps personnel were actively involved in the response to Hurricane Hugo, both before Hugo struck in mid-September, and during the recovery operation.

Today in the Virgin Islands, the Corps is managing the restoration of the entire infrastructure—a major effort. If I might, at this point, recognize General Bunker, who is sitting in the back.

LOMA PRIETA EARTHQUAKE

Immediately following the October 17 earthquake in California, the Corps activated its emergency procedures. Later, on Friday, October 20, the Federal Emergency Management Agency, FEMA, requested Corps personnel to support its individual assistance programs. By Monday, more than 300 volunteers from the Corps offices throughout the country were in California in response to FEMA's request.

The Corps is providing not only engineering, construction contracts management, and oversight, but also damage survey reports and other services. I am pleased to say that both senior military leaders of the Corps of Engineers who are here with me were in San Francisco personally to observe and supervise that operation.

SPECIFICS FOR THE 1991 CIVIL WORKS BUDGET CONSTRUCTION PROGRAM

The proposed construction program for 1991 is $1.45 billion, including $226 million for the Flood Control, Mississippi River and Tributaries, FC, MR&T, project, or 12.6 percent more than the 1990 program. This amount includes $238 million in Federal funds to continue work initiated in 1990.

The focus of the 1991 program is to follow through on projects started in previous years and support the environmental goals of the President. The decision to defer additional major new construction starts is for one year only.

OPERATIONS AND MAINTENANCE PROGRAM

The 1991 budget of just under $1.4 billion for the Operation and Maintenance, General, account is 2.4 percent greater than the post-sequestration funding level for 1990. Most navigation harbors and channels will be dredged as need arises. Funding is provided for operation and maintenance of the Corps' approximately 2,500 recreation areas and reservoirs currently open. At this time last year, this issue was quite the subject of conversation. The 1991 budget also includes $121 million for maintenance in the FC, MR&T project, essentially the same as in 1990.

The budget for O&M, as a percentage of the budget for the civil works program has increased steadily. In 1991, it accounts for 45 percent of the total. A comprehensive review of the O&M program is urgently needed, and we are initiating one this year to assure that Federal expenditures for O&M are justified, and are made in the most cost-effective manner.

The increasing pressure to transport dredge material greater distances for disposal is an important area of concern. Such proposals require careful study and there is a risk of the costs being escalated without commensurate benefit. We are looking to the sponsors to help resolve conflicts for the placement of dredged materials and expect them to be active partners in studies of these issues.

REGULATORY PROGRAM

Under the regulatory program, the Department of the Army is expanding its emphasis on wetlands protection in support of the President's goal of no overall net loss of wetlands. The budget request is for $75 million and will permit continuation of this. That is in follow-up of your statement, Mr. Chairman.

CHANGING PRIORITIES FOR THE CIVIL WORKS PROGRAM

In addition to major environmental initiatives, the 1991 budget proposes to place new emphasis on improvement of American infrastructure, as mentioned by the Chairman. The budget includes $5 million to continue the construction advancement research, or CPAR, program. This truly is a pioneering effort. A cost-sharing partnership with the U.S. construction industry is off to a highly successful start. Industry's response so far has exceeded our expectations and it continues at a high level. This forward-looking subcommittee was instrumental in the initial success of this program, and I would like to say that we truly do mean that. We very much appreciate what you on this committee did to help us advance this program.

The MAGLEV program offers a new system in transportation which may provide the U.S. one of the best opportunities for economic expansion in the 21st century. The Administration supports an investment in this field and the 1991 budget includes $3.5 million for a pilot program for the development of an operational U.S. MAGLEV system.

EXTENSIONS OF THE BENEFICIARY PAY PRINCIPAL

Several user fee changes are proposed in the 1991 budget. User fee changes that would require authorization include an increase in harbor maintenance user fees and expansion of recreation user fees.

SUPPORT FOR OTHERS

Because of its technical expertise and organizational structure, the Corps often is called upon to provide engineering and construction management service to other agencies. During 1989, the Corps provided support to 26 Federal agencies. The largest activity continued to be support for the EPA Superfund and Wastewater Treatment Construction Grants programs.

CONCLUSION

Mr. Chairman, in conclusion, we wish to emphasize our support for the President's 1991 budget, which addresses changing priorities while facing the severe constraints of the Federal deficit. We hope that the subcommittee will be able to support this budget.

And finally, Mr. Chairman, I would like to say on behalf of all of us that I have been pleased over the past three years to have been working with Mrs. Smith. We would like to, if we might, take this opportunity to express our gratitude and appreciation to you, Mrs. Smith, for the help and support that you have given us. Congratulations and best wishes to you on your impending retirement.

Mrs. SMITH. Thank you.
Mr. BEVILL. We agree, Mr. Secretary.
Mr. PAGE. Mr. Chairman, that concludes my statement.
[The prepared statement of Secretary Page follows:]

DEPARTMENT OF THE ARMY

OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

COMPLETE STATEMENT

OF

THE HONORABLE ROBERT W. PAGE

ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

ON THE

FISCAL YEAR 1991 CIVIL WORKS BUDGET

FEBRUARY 6, 1990

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STATEMENT OF ROBERT W. PAGE
ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)
BEFORE THE SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT,
COMMITTEE ON APPROPRIATIONS, HOUSE OF REPRESENTATIVES
ON THE FISCAL YEAR 1991 CIVIL WORKS BUDGET

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

INTRODUCTION

I am pleased to be testifying before this Subcommittee today on the proposed Fiscal Year (FY) 1991 budget for the Civil Works program of the Army Corps of Engineers. Assisting me are the Principal Deputy Assistant Secretary, Mr. John S. Doyle, Jr.; the Chief of Engineers, Lieutenant General Henry J. Hatch; the Director of Civil Works, Major General Patrick J. Kelly; and the Chief of the Civil Works Programs Division, Mr. Don B. Cluff.

My statement covers the following topics:

> Overview of the President's FY 1991 Civil Works budget;
> Items of Special Interest, FY 1989 and FY 1990; and
> Specifics of the FY 1991 Civil Works budget, including:
- Construction Program,
- Operation and Maintenance Program,
- Regulatory Program,
- Changing priorities of the Civil Works budget,
- Extensions of the beneficiary pay principle, and
- Support for others.

The Chief of Engineers also has a statement which provides additional details on the President's budget for the Civil Works program.

OVERVIEW OF THE PRESIDENT'S FY 1991 CIVIL WORKS BUDGET

The proposed FY 1991 budget for the Civil Works program totals $3.54 billion, a 7 percent increase over the post-sequester level for FY 1990. This is a sound and responsible budget. The budget reflects the Administration's continued support for development of the Nation's water resources for commercial navigation and flood control and for efficient management of Corps of Engineers operated and maintained navigation systems and reservoirs.

The budget also places new emphasis on maintaining and restoring the environment. A number of important initiatives are budgeted which will mitigate environmental losses at previously constructed projects and further address innovative approaches to the Nation's infrastructure problems. The initiatives include budgeting, for the first time, Columbia River juvenile fish mitigation and Tennessee-Tombigbee Waterway wildlife mitigation. In the interest of infrastructure improvement, funds are included for the Magnetic Levitation Transportation Pilot program.

The proposed FY 1991 budget of $3.54 billion includes $3.33 billion in Federal funds and $207 million in non-Federal contributions. These non-Federal cash contributions are supplemented by the provision of lands, easements, rights-of-way and relocations for authorized projects, which are estimated to cost $243 million.

The Federal budgeted amount includes $2.71 billion in General Treasury appropriations and $618 million from the Inland Waterways and Harbor Maintenance Trust funds ($133 million from Inland Waterways Trust Fund and $485 million from the Harbor Maintenance Trust Fund, which includes $192 million under existing legislation and $293 million under proposed legislation). Harbor maintenance user fees would be increased to a level that would be sufficient to cover all commercial harbor maintenance costs.

The General Treasury appropriations will be offset by some $33 million in receipts from currently authorized recreation use fees, payments for lease of Federal lands, and tolls collected by the St. Lawrence Seaway Corporation. Under proposed legislation, the General Treasury amount would be further offset by $20 million for special recreation use fees. By administrative action, some $17 million in governmental fees will be collected for processing permit applications and other requests under the Regulatory program.

Table A, which is attached, summarizes the FY 1991 budget by appropriation account.

The FY 1991 Civil Works budget is reflective, to a considerable extent, upon directions established, and challenges confronted, in prior years. Accordingly, it is appropriate to mention a number of items of special interest in FY 1989 and FY 1990 Civil Works programs before presenting specifics of the FY 1991 Civil Works budget.

ITEMS OF SPECIAL INTEREST, FY 1989 AND FY 1990

New Starts and Other New Work

Mr. Chairman, the large number of projects and studies funded for initiation in FY 1990 present a challenging new starts and new work program. It is a program that places substantial demands on FY 1991 resources. The total Federal commitment reflected in the work added to the FY 1990 program exceeds $1 billion. In addition to funding 10 new construction projects requested in the President's budget, final action on FY 1990 appropriations provided for the initiation of construction on more than 20 other projects, as well as for a substantial level of other new work, such as the reconstruction of the Sacramento River levees in California. Appropriations for FY 1990 also funded the initiation of 63 new reconnaissance studies, twice the number requested, and 41 preconstruction engineering and design (PED) projects, 9 more than requested.

Controlling Costs and Maintaining Schedules

The cost estimates and schedules presented in the FY 1991 budget justifications have been adjusted since presentation of the FY 1990 budget. This includes adjustments to authorized project costs enacted by Congress in the 1990 Energy and Water Development Appropriations Act and in the Dire Emergency Supplemental Appropriations Act of 1989. Approximately half of the projects budgeted for construction last year and funded under the new cost sharing rules now have cost estimates higher than a year ago and a comparable number of schedules for these projects also have slipped.

The Chief of Engineers, the Director of Civil Works, and I are not satisfied with this performance and are resolved to improve it. Significant changes in management procedures have been put in place to foster our commitment to the construction of sound projects on time and within budget. Project managers have been assigned to all major Civil Works projects. These managers are responsible for maintaining costs and schedules from the study phase through construction, and serve as the primary point of contact for the cost sharing partner. In addition, monthly meetings of top management are held at the districts, divisions, and Washington Headquarters to identify issues and get them resolved quickly.

We also are eliminating time consuming, sequential reviews wherever possible, so that the project manager can proceed, knowing that the district, division, Headquarters, and the Office of the Assistant Secretary share a common perspective. We have put emphasis on measuring and controlling overhead and on the importance of a thorough cost estimate early in the planning process, so that the estimates we present more accurately reflect the complete cost of the project. Finally, project managers will have sufficient authority to justify their accountability for results.

Local Cooperation Agreements

We are pleased with the progress made in FY 1989 in executing Local Cooperation Agreements (LCAs) for construction new starts. Since cost sharing reforms went into effect in November 1986, LCAs have been signed with sponsors of 94 specifically authorized projects, including 32 separable elements. Of these LCAs, 20 were executed during FY 1989 and 6 have been executed already this year. The total investment represented by these 94 LCAs is $4.3 billion, of which more than 35 percent is to be provided by non-Federal sponsors. Additional LCAs are scheduled to be signed during FY 1990 with sponsors of 24 major projects and 6 project separable elements.

Continuing Drought Efforts

Drought conditions continue to affect Corps projects in some areas of the Nation. Projects are plagued by low reservoir storage volumes and low river levels which, in turn, cause negative impacts on all the purposes for which the projects were authorized. A short assessment of the most significantly affected areas follows. Responding to these events will require careful management of financial and personnel resources.

Missouri River Basin - After 3 successive drought years, the six main stem Missouri River reservoirs, which comprise the Corps largest single water storage system, are at their lowest volume since the system was first filled in 1967. Diminished project releases have affected hydropower generation, navigation depths, water supplies for municipalities and power plants, and river-based recreation, and lower lake levels have affected lake-based recreation and some municipal and agricultural water supplies. Although the current volume of stored water should be sufficient to meet project purposes generally even if the drought were to continue for several more years, it still would take 6 successive years of normal runoff to refill the reservoirs to their normal operating levels.

Middle Mississippi River - Below-normal runoff from the Upper Mississippi River and the Missouri River basins caused the flow rates and stages of the Mississippi River between St. Louis, Missouri, and Cairo, Illinois, to be well below normal throughout 1989 and into 1990. At times, these conditions required reduction in the size and draft of the commercial barge tows navigating this reach of the Mississippi River and, during the ice-impacted period last December, caused the closure of navigation for several days. Improvement in this situation is dependent upon the future occurrence of snowmelt and rainfall runoff.

California's Central Valley - The third successive year of drought in central California caused low storage levels to be reached at Corps reservoirs in the southern portions of the central valley during 1989. Storage volumes now are as low as 15 percent of historical average amounts at some projects. This shortage of storage principally affects the irrigation districts that bought the storage capacity and own the rights to the water therein. Similar situations are encountered at other Federal and State reservoirs in the region.

Central and Southern Florida - Lake Okeechobee, the principal source of water for the Central and Southern Florida region, dropped in volume for the second year in a row and is now more than 2 feet below normal. Also, the water conservation areas are at their lowest levels ever. Water deliveries from the Corps Central and Southern Florida project through shark slough to the Everglades National Park have been stopped, and only minimum deliveries are being made to the park through Taylor Slough. Water restrictions have been imposed on residential and commercial users within the South Florida Water Management District, the local sponsor for this project.

Water Management During Drought Study - We appreciate this Subcommittee's support for initiation in FY 1990 of a wide-reaching study of water management during drought. The FY 1991 budget includes $2.5 Million to continue this important effort. We recognize that the value of project outputs change over time and that project operations should change with those values. It is our expectation that this study will increase the contribution which existing projects make to the Nation's economy by developing a consensus on this and other issues regarding the management of the Nation's waters during drought.

Corps Response to Disasters

The past year saw a series of events that challenged the Corps' ability to respond to multiple disasters, both natural and man-made. The Corps met these challenges admirably, and we are proud of all of the personnel involved.

We wish to personally express appreciation, on behalf of all Corps employees, for your laudatory comments, Mr. Chairman, which were printed in the Congressional Record for November 2, 1989. We would like to summarize for the record our involvement in those major disasters.

When the Exxon VALDEZ grounded on March 24, 1989, it created a crisis that the oil industry and the Nation were not prepared to handle. In support of the Department of Defense, the Corps provided two seagoing hopper dredges, the ESSAYONS and the YAQUINA, which were successful in skimming 6,900 barrels of oil out of a total of 51,000 barrels recovered.

This spill response demonstrated the capabilities of Corps hopper dredges and potentially those of industry to respond to such events. In addition, scientific teams from two Corps R&D laboratories provided on-site technical support to the Alaska oil spill cleanup effort.

To improve its ability to respond to oil spills in the future, the Corps has initiated several actions. These actions included an engineering study to identify retrofits and modifications that can be made to Corps hopper dredges to enhance oil recovery operations in a safe manner; a survey of industry-owned hopper dredges and industry's capability to respond; use of latest techniques in remote sensing to locate and track oil; coordination with other agencies relative to shore cleanup; and management strategies to ensure a timely, efficient and cost effective response on the part of the Corps.

Hurricane Hugo struck in mid-September. Before Hugo made landfall, the Corps dispatched personnel to potential target areas, such as the Virgin Islands, Puerto Rico and the South Atlantic Coast of the mainland. The Corps worked with local and State authorities in reviewing an evacuation plan that enabled 130,000 people to safely leave the Charleston area. After Hugo struck on September 18, the Corps initiated immediate response activities. In the Carolinas, the Corps provided survey boats and standby equipment to ensure safe passage of vessels in Charleston Harbor. In the Virgin Islands, the Corps provided generators for hospitals and other life-support facilities, and Corps personnel assessed damage to the island's power system and harbor facilities at Fredericksted Pier. In Puerto Rico, the Corps provided tankers and potable water and removed sunken vessels endangering traffic in San Juan Harbor. There is a major ongoing effort in the Virgin Islands, particularly in St. Croix, where the Corps is managing the restoration of the island's infrastructure.

On October 15, a second hurricane, Hurricane Jerry, struck Galveston, Texas. As the storm approached, Corps personnel implemented preparedness and response plans, again working with local authorities on evacuation plans. Fortunately, damage from Hurricane Jerry was minimal, so no long-term recovery effort by the Corps was necessary.

On October 17, the fourth largest earthquake in California history struck. The Corps San Francisco District and South Pacific Division offices were rendered inoperable. In accordance with its emergency operations plan, the Sacramento District assumed control to provide an immediate response.

Other offices were reestablished the following day at Presidio Army Base. Late on Friday, October 20, the Federal Emergency Management Agency (FEMA) added a new, special mission and requested Corps personnel to support its individual assistance programs. By Monday, more than 300 volunteers from Corps offices throughout the country were in California, ready to provide the requested assistance. Under both its own and FEMA's authorities, the Corps is providing a variety of earthquake response and recovery assistance including: engineering; construction and contract management and oversight; preparing survey and damage reports; and nontraditional assignments from FEMA, such as conducting habitability inspections of individual residences.

In addition to supporting FEMA, the Corps has provided disaster recovery support to the General Services Administration, the Small Business Administration and the Department of Education. At times the Corps had over 1,200 personnel directly involved in disaster response and recovery operations from the events described above.

FY 1990 Gramm-Rudman-Hollings Sequester

FY 1990 appropriations were reduced by 1.4 percent by the President's final sequester order under the Gramm-Rudman-Hollings Act. The relatively small amount actually sequestered --$44 million--and the Corps' normal reprogramming authorities will allow the Corps to manage this sequester reduction so as to have the smallest possible impact on project and study schedules and on maintenance.

SPECIFICS OF THE FY 1991 CIVIL WORKS BUDGET

Construction Program

The proposed construction program for FY 1991 is $1.45 billion (including $226 million for the Mississippi River and Tributaries (MR&T)), 12.6 percent more than the FY 1990 program. This amount includes $238 million in Federal funds to continue work initiated in FY 1990 in both the Construction, General, and MR&T accounts. The focus of the proposed FY 1991 program is to follow through, with few exceptions, on planning and construction projects for which initial appropriations were made in prior years and to support the environmental initiatives of the President.

The Corps of Engineers has made a commitment to the Administration, Congress, and project cost sharing sponsors to deliver sound projects on time and within budget. Follow-on requirements of new starts and other new work funded for initiation in FY 1990 carry the potential to strain available

funding levels over the next few years. Consequently, we made the difficult decision to defer proposing, for 1 year only, additional major construction new starts and to severely constrain new planning efforts. Although no major construction new starts are proposed, the FY 1991 budget would fund limited other new work, such as separable elements and small project new starts in the Continuing Authorities program.

More than 100 studies and PED projects, in addition to the new starts and other new work, were initiated in FY 1990. The funding and personnel resource requirements to continue these efforts also dictate that additional new planning activities be initiated in FY 1991 only on an exception basis. Therefore, we are not proposing any new reconnaissance studies in FY 1991, and have limited the PED new start request to 1 project that would mitigate adverse fish and wildlife impacts of an ongoing project and 1 project related to Indian Fishing Treaty rights.

Operation and Maintenance Program

The FY 1991 budget of just under $1.4 billion for the Operation and Maintenance, General, account is 2.3 percent greater than the post-sequester funding level for FY 1990. Although a backlog of deferred maintenance remains, the funding level which is proposed is adequate to perform current levels of operation and maintenance requirements at Civil Works projects. Most navigation harbors and channels will be dredged as the need arises--there is $372 million provided in the budget for dredging, including $55 million for maintenance dredging of small boat harbors. Funding in the amount of $158 million is provided for the continued operation and maintenance of the Corps' approximately 2,500 currently open recreation areas at Civil Works projects.

The FY 1991 budget also includes $121 million for maintenance in the MR&T program, essentially the same as in FY 1990.

As a percentage of the Corps total Civil Works program, the Corps budget for O&M has increased steadily over the years and in FY 1991 accounts for 45 percent of the total Corps Civil Works program. As the events of a year ago have made clear, a single budget cycle does not allow sufficient time to address and resolve the many important issues that surround the O&M program of the Corps. A comprehensive review of the O&M program is urgently needed to assure that Federal expenditures for O&M are justified and are made in the most cost-effective manner. Consequently, we are initiating in FY 1990, with $300,000 of available funds, a major review of policy and procedure options for project O&M. The FY 1991 O&M budget includes $1.0 million to continue this effort, which would be completed during FY 1992. Full use of other management studies underway will be made in this review of O&M.

Another area of concern is the increasing pressure to transport dredged material greater distances for disposal. Such proposals require careful study and raise the risk of escalating costs, without commensurate benefits. We are looking to the sponsors of Corps projects to help resolve conflicts regarding placement of dredged material and expect them to be active partners in studies concerning these issues.

Regulatory Program

The budget request for the Regulatory Program is $75 million. Under this program, the Department of the Army is expanding its emphasis on wetlands protection in support of the President's goal of no overall net loss of wetlands. Wetlands efforts were expanded in late FY 1989 with a supplemental appropriations transfer of $2 million for enforcement and wetlands training. For FY 1990, these expanded efforts are proposed to be continued with the reprogramming of $4 million in funds initially allocated for the Bridge Administration program. Transfer of the Bridge Administration program from the Coast Guard to the Army was proposed for FY 1990, but authorizing legislation has not yet been enacted.

The FY 1991 budget of $75 million would enable us to continue our wetlands protection efforts, while improving timeliness of permit processing. Legislation will again be proposed by the Administration to transfer the Bridge Administration program to the Army. If it is enacted, supplemental appropriations will be requested to carry out the program in FY 1991.

The Department of the Army concluded some important agreements last year which will aid in strengthening its wetlands protection efforts. The Corps of Engineers, the Environmental Protection Agency (EPA), the Fish and Wildlife Service, and the Soil Conservation Service completed a new, unified Federal manual for identifying and delineating wetlands. The Army and EPA have signed a jurisdiction agreement for the Section 404 Permit program and an agreement to strengthen the Section 404 Enforcement program by defining enforcement responsibility between the two agencies. In addition to increasing wetlands protection, these agreements have improved program management and enhanced the working relationship between EPA and the Corps.

Changing Priorities for the Civil Works Program

The FY 1991 budget proposes to place new emphasis on two areas in the Civil Works program: the maintenance and restoration of the environment and improvement of American infrastructure. Table B, which is attached, summarizes the initiatives which are included in the budget.

Maintaining and Restoring the Environment - The FY 1991 budget proposes funding to initiate several important new activities to maintain and restore the environment, as well as continuing several environmental activities previously initiated by Congress.

The budget proposes funding to continue construction of juvenile fish mitigation facilities at four Corps dams in the Columbia and Snake River basins. In addition, the budget proposes initiation of a detailed analysis of the overall extent of justified fish mitigation for the main stem Lower Columbia and Snake River dams. This analysis would be closely coordinated with the Bonneville Power Administration and non-Federal regional interests.

We propose initiation of PED for Columbia River Treaty fishing access sites in Oregon and Washington, as well as initiation of mitigation PED for the Richard B. Russell project in Georgia and South Carolina and for completed portions of the Yazoo Backwater project in Mississippi. In addition, a proposed FY 1990 reprogramming would allow the Corps to take advantage of an opportunity to acquire 9,000 acres of undeveloped land in Mississippi, which would become part of the mitigation plan for completed portions of the Yazoo Backwater project.

We are particularly pleased that the proposed budget includes $20 million to initiate land acquisition for mitigation of adverse environmental effects of the Tennessee-Tombigbee Waterway project in Alabama and Mississippi. The budget also includes follow-on funding for Missouri River navigation project mitigation PED, which will be initiated in FY 1990 due to the foresight of Congress.

We also propose to initiate construction on the Davis Pond Freshwater Diversion structure in Louisiana and Mississippi, part of the Mississippi River Delta Region project.

The budget includes $5 million to carry out project modifications for the restoration of the environment under authority of Section 1135 of the 1986 Water Resources Development Act, and we intend to submit a legislative proposal to extend the authority of this Section for 5 more years, until 1996. Until now, the only project funded under this authority has been a restoration demonstration project on the Kissimmee River in Florida, which Congress added to the FY 1990 program.

A reformulation study is underway and will be continued in FY 1991 for unconstructed portions of the Yazoo Basin project in Mississippi. The objective is to provide greater levels of urban flood protection with lesser adverse environmental impacts.

We propose two new R&D activities: a 3-year wetlands R&D program would be initiated with $3 million of funds available in FY 1991 to the O&M program, where most of the benefits would be realized. Also, $500,000 would be allocated within the General Investigations R&D budget to respond to the President's initiative on global warming expressed through the Intergovernmental Panel on Climate Change and the Coordinating Council for Science, Engineering and Technology.

We also want to mention two interagency coordination efforts proposed for initial funding in FY 1991: cooperation with EPA on its National Estuary program and participation in the Fish and Wildlife Service's North American Waterfowl Management program.

Improving American Infrastructure - The FY 1991 budget proposes three major activities related to improving the infrastructure of this country.

The FY 1991 budget includes $5 million to continue the Construction Productivity Advancement Research (CPAR) program. This pioneering effort in cost sharing partnership with the U.S. Construction industry is off to a highly successful start. Industry response far exceeded our expectations, and it continues at a high level. This forward-looking Subcommittee, Mr. Chairman, was instrumental in the initial success of the program.

In response to the Corps 1989 invitation, 145 proposals were submitted. Of the proposals received, 56 were selected as deserving support, although the Corps was able to participate in only 17 within available funding. Our industry partners on the 17 joint ventures include construction firms, architect-engineers, materials and equipment suppliers, academic institutions, non-profit organizations, and State agencies--32 partners in all. The Corps share of the cost of these projects was $2.7 million, while the industry partners will contribute more than $7 million. The technologies to be developed will benefit industry productivity and competitiveness and will lower program costs in the Corps and Government in generally. Examples of funded projects include a robotic device to place masonry sections; a method of destroying waste contaminating asbestos at building sites; improved cement for concrete; lower-cost base materials for road construction; and a simplified method for contractors to comply with Occupational Safety and Health Administration hazardous materials notification standards.

Proposals have been requested for FY 1990, and we fully expect the same high level of interest that we experienced last year. The FY 1991 program will begin to seek out some longer range, higher risk projects to further stimulate the construction industry to once again make R&D part of its mainstream activities.

The magnetically levitated (MAGLEV) transportation system offers a new concept in transportation which, creatively developed, may provide the U.S. one of its best opportunities for economic expansion in the 21st century. MAGLEV could serve as a powerful new mode of U.S. transportation and as a globally marketable industry with technological spin-offs to other U.S. industries. The Administration supports this technology, and has included funds in the FY 1991 budget, for a pilot program for the development of an operational U.S. MAGLEV system.

Pending specific MAGLEV authorization, which we are proposing, FY 1990 activities will be limited to planning and coordination. Following authorization, we will prepare an implementation plan, develop system parameters, establish a Federal Interagency MAGLEV Committee, expand our dialogue with industry, and initiate a study of magnetic field effects. We are working closely with the Federal Railroad Administration and the Department of Transportation on these efforts.

The FY 1991 budget includes $3.5 million for MAGLEV to enter into cost shared efforts with private sector partners to develop design concepts and continue technical and health and safety assessments.

A 3-year effort is proposed to develop a Federal strategy for addressing America's infrastructure problems. Currently, there is no integrated Federal focus on infrastructure issues and no means to evaluate and implement recommendations such as those in the 1988 "Fragile Foundations" report of the National Council on Public Works Improvement. The FY 1991 budget includes $350,000 to establish a Federal Infrastructure Advisory Board and lay out a specific course of action to develop a Federal infrastructure strategy. During the following 2 years, recommendations would be developed to address issues such as these: modifying Federal programs to improve infrastructure development and management; public and private roles in infrastructure; the benefits associated with infrastructure and the evaluation and prioritization of public and private investment; and institutional changes needed to adequately address the Nation's infrastructure problems.

The improved technology which resulted from the recently completed Repair Evaluation Maintenance Rehabilitation (REMR) research program is expected to account for an estimated $200 million in O&M cost savings over the next five years, with the added benefit of improved safety and reliability and reduced personnel requirements. Based on the success of this effort,

we propose to initiate a follow-on program, REMR II, in FY 1991 to achieve further savings in other O&M areas. The proposed 7-year program will address, among other things, concrete and steel structures, geotechnical applications, hydraulics, coastal improvements, and electrical and mechanical equipment. The FY 1991 budget request includes $4 million for REMR II, with an estimated total program cost of $35 million.

Extensions of the Beneficiary Pay Principle

Several user fee changes are proposed in the FY 1991 budget, some of which require authorization. User fee changes that would require authorization are an increase in harbor maintenance user fees; expansion of recreation user fees; and phased-in user fees in the Flood Plain Management Services and Planning Assistance to States programs. Legislation to implement these proposals is undergoing final Administration review and will be submitted shortly.

Harbor Maintenance User Fees - Legislation is being proposed that would increase the ad valorem user fee on commercial cargo loaded and unloaded at U.S. ports from the current level of 0.04 percent to 0.125 percent. The proposed legislation would change the maximum charge to the Harbor Maintenance Trust Fund from 40 percent of costs to 100 percent of costs, and would authorize the recovery up to a total of $5 million of administrative costs incurred by the Corps, the Coast Guard and the Census Bureau in administering harbor maintenance user fees. Based on current and projected traffic, cargo value, and maintenance costs, 0.115 percent is estimated to be the fee level necessary to recover 100 percent of the costs of maintaining commercial ports and harbors. The National Oceanic and Atmospheric Administration will be proposing separate legislation to authorize recovery of its costs associated with maintaining harbors and channels. This change would increase the ad valorem rate from the above 0.115 percent to 0.125 percent.

Recreation User Fees - We are again proposing legislation to remove several restrictions on the our ability to collect recreation user fees at project areas operated and maintained by the Corps. Charging user fees such as those we propose is normal practice at State, local, and private recreation areas providing comparable services. Increased receipts resulting from enactment of this proposal would be requested in future years to supplement appropriations from general revenues in the same way that existing special recreation user fees are currently handled.

Flood Plain Management Services and Planning Assistance to States - Legislation will also be proposed to extend the beneficiary pay principle to the Flood Plain Management Services program and to the Section 22 program for Planning Assistance to States. Unlike the legislation proposed last

year by the Administration, this proposal recognizes the importance of giving non-Federal public and private users of these programs substantial notice of user fee requirements. Consequently, fees would be phased in over a 3-year period, gradually increasing the non-Federal share, from 10 percent to 30 percent to 50 percent.

User fee increases that are proposed to be implemented administratively are regulatory program permits, cottage site leases and shoreline management fees.

Regulatory Program Permits - Fees for Section 10 and Section 404 permits have received a great deal of attention in recent years. The Conference Report accompanying the FY 1989 Appropriations Act asked us to provide a full cost recovery plan for the regulatory program. We concur in the assessment that fees for processing permits have been unrealistically low, but we recommended a partial cost recovery plan. This plan still involves a substantial increase in permit fees. Regulations are being drafted that would increase fees from the current level of $10 for private projects and $100 for commercial projects to a range of fees from $100 to $500 for private projects and $100 to $2,000 for commercial and revenue producing projects. The draft regulations would impose processing fees at the time of application, rather than at the time of permit issuance as in the current fee system. We also are proposing to collect fees for processing jurisdictional determinations, environmental impact statements, and public hearings. We estimate that this regulatory change will increase treasury revenues by $17 million in FY 1991.

Cottage Site Leases - We have begun implementation of Section 1134 of the Water Resources Development Act of 1986, which provided that cottage site leases be continued beyond December 31, 1989, but required lease renewal to be a fair market rental. In those instances where there will be major increases in rental, such as the cottages along the Upper Mississippi and Illinois rivers, a flexible method of rental collection will be offered to allow for lower initial-year payments if the lessee desires.

Shoreline Management Fees - At 100 reservoir projects around the Nation, the Corps permits the development of private docks and other private facilities. These permits provide a significant benefit to permittees that is not available to the general public. It is our policy to recover from the direct beneficiaries the cost of administering the program. The current charge is $30 for a 5-year permit. This charge was established in 1974 and has not been increased since that time. Studies by the Corps indicate that the current charge falls far short of recovering program costs. We are reviewing available options for recovering our costs. Prior to implementing any increases, a formal rulemaking process will be used that provides ample opportunity for the expression and consideration of public views.

Support for Others

Because of its technical expertise and organizational infrastructure, the Corps often is called upon to provide engineering and construction management services to other agencies. During FY 1989, the Corps provided support to 26 Federal agencies. Some support also was provided to State and local Governments in cases where the Corps has a capability not readily available in the private sector.

The largest work for others activity continues to be support for EPA's Superfund and Wastewater Treatment Construction Grants programs.

We continue to solidify the partnership between the Corps and EPA and are discussing with them additional ways the Corps' expertise may be called upon to support the Superfund program. We especially are proud of the Corps performance in assisting EPA to satisfy its congressional mandate to have 175 projects under construction by October 16, 1989. As EPA has reported to Congress, construction contracts were awarded by the October deadline on more than 175 projects. Of these, the Corps was responsible for delivering 29, about 1/3 of the Federal-lead projects on the list.

New work undertaken by the Corps in FY 1989 includes: construction supervision support to the National Aeronautics and Space Administration for its $650 million advanced solid rocket motor project at Yellow Creek, Mississippi; and assistance to EPA's Great Lakes National Program Office in a study and demonstration program relating to the control and removal of toxic pollutants in the Great Lakes.

We are interested in providing support to the Department of Energy (DOE) on its Supercollider, New Production Reactors, and radioactive waste cleanup programs, and we have had some preliminary communications with Admiral Watkins and other DOE officials on these subjects. On Supercollider, we helped DOE develop a management plan, and we are currently providing certain real estate services for the project.

As part of the Nation's war on drugs, we have offered the Corps' engineering support to the Federal Bureau of Prisons as it increases prison capacity. This support would be provided in conjunction with the recently created Department of Defense Bureau of Prisons Assistance Council, which is responding to the Attorney General's request for help in obtaining prison sites on military properties affected by the Base Closure and Realignment Act. Finally, we are continuing negotiations with the State Department concerning Corps support on its Embassy Construction program.

CONCLUSION

Mr. Chairman, we want to emphasize our support for the President's FY 1991 budget, which addresses changing priorities while facing squarely the severe constraints imposed by the Federal deficit. We are hopeful that the Subcommittee will be able to support this budget.

Mr. Chairman, this concludes my statement.

Mr. BEVILL. Now we will hear from the Chief, General Hatch.

SUMMARY STATEMENT OF LT. GEN. HENRY J. HATCH, CHIEF OF ENGINEERS

General HATCH. Mr. Chairman, I am honored again to be testifying to you today, along with Secretary Page, for the 1991 budget for the Army Corps of Engineers Civil Works Program.

Mr. Chairman, you commented in response to Secretary Page's pointing out about General Kelly's promotion, that you hoped that he would continue to communicate with lesser beings. We have a very interesting bit of calculus in the Army, referring to stars on one shoulder. It basically goes that any sum of one's is less than any number of two's. And I assure you, any sum of two's is less than one three.

Mr. PAGE. What did he say?

Mr. BEVILL. Mr. Secretary, we will have to think about that one.

Mr. WHITTEN. That sounds like the budget.

Mr. BEVILL. The first time I saw a General was in ROTC. They just scared the daylights out of us. We got word that the Brigadier General was coming to see us, and we were to stand inspection. We had our shoes and brass polished and all of that. The General stopped to ask the fellow right next to me a question. I just froze. He just asked the man his name, and he couldn't think of his name.

General HATCH. Thanks to your support, our civil works program remains vibrant and robust, and we appreciate your continued support in this very important program that we believe, with you, represents a sound investment of taxpayers' resources and is so beneficial to our Nation.

My statement will address these four topics: First, the fiscal year 1990 program; secondly, the President's fiscal year 1991 budget request; third, our improved business management within the Corps; and fourth, a summary of our legislative proposals.

I have a complete statement and a plan for the O&M study mentioned by Mr. Page. I wish to submit both for the record. However, I would like to summarize my remarks with your permission.

Mr. BEVILL. The entire statement will be made a part of the record.

FY 1990 PROGRAM

General HATCH. Execution of our fiscal year 1990 program is particularly challenging, as Secretary Page indicated, because of the numerous new starts and other new work funded in the general investigations and construction, general programs.

The challenge will be to initiate the new studies and projects to the fullest extent practicable. In this regard, we will need all the assistance we can get, not only from within the Corps and you, but also from our non-Federal project sponsors.

In essence, our plate is sufficiently full with new starts in fiscal year 1990, and we believe it prudent not to request new starts for fiscal year 1991 in order to ensure a balanced program through 1991, and orderly execution in that fiscal year.

PRESIDENT'S FY 1991 BUDGET

Moving to the President's 1991 budget, I would like to emphasize that our 1991 program addresses not only the developmental needs of the Nation, but also the Administration's priority concern for the environment, as indicated by 13 environmental initiatives funded in this budget.

As our budget demonstrates, we remain committed to water resources development, but only to the extent that the Nation's agricultural and industrial bases are not jeopardized. We truly believe that we must find environmentally sound ways to proceed that do not erode our natural resource base for future generations.

The budget request of $3.33 billion is based on several legislative and administrative changes that increase non-Federal funding of the program by $331 million. Consistent with the President's commitment to the beneficiary-pay principle, the proposed changes will raise the non-Federal share to $859 million, or about 25 percent of the requested Federal funds.

Given the growth in program funding since fiscal year 1986, this increase is needed to fund currently planned work at optimum levels within budget deficit targets.

MANPOWER

Concerning manpower, the engineering and construction support we provide other Federal agencies on a reimbursable basis is key to both our future and the success of their programs. Not only do those agencies benefit, but so do we, in our basic missions-water resources management and military construction. Our staffs gain invaluable experience for use in our traditional programs, and it is that diversity in experience that enables us to respond to whatever national problem we may be called upon to address. For example, with the Administration's approval, we are initiating a three-year study to develop a Federal strategy for maintaining, rehabilitating, and developing the Nation's infrastructure, including energy, transportation, and hazardous waste and water management systems. This study will be overseen by a Federal Advisory Board comprising representatives of agencies involved in infrastructure matters, and will entail review of selected strategies including those of the National Council on Public Works Improvements.

I might add, Mr. Chairman, that in its report summary, the Council provides a scorecard for each component of the Nation's infrastructure. I believe that this subcommittee can be proud that because of its foresight, our Nation's water resources infrastructure received, although not an A, the highest grade of all components of that infrastructure.

IMPROVED BUSINESS MANAGEMENT

Again, given the importance of what we do, we are very concerned about how we do it. In order to serve our customers and non-Federal partners better, and through them, our Nation, we are continuously striving to improve the effectiveness and efficiency of our business operations. To this end, we have initiated several organizational studies, expanded and streamlined our work management efforts, focused on more effective career management and de-

velopment of our leaders, particularly civilians, and increased our research and development for process and product improvements. I would like to highlight a few of them now.

EFFECTIVE ORGANIZATION

Concerning our organization, in keeping with the spirit of the fiscal year 1990 conference report, we plan to conduct a broad-based conceptual study of alternative organizational structures for our divisions and districts. Our goal is to reduce program costs without adversely impacting the quality of our service to our customers. To do this, we plan to identify factors and criteria needed for shaping more efficient organizational structures, along with constraints that could work against their implementation, then to identify the structures that may warrant further consideration in dealing with the future environmental and engineering challenges. The findings will be shared with the Congress, along with other interested parties, before we would consider moving on to a next phase should implementation appear warranted.

HUMAN RESOURCE MANAGEMENT

In the continuing efforts to improve our work management, I recently reorganized our headquarters to strengthen our program focus on those traditional programs of civil works and military construction. We have also implemented life cycle project management, begun a year ago for our civil program, for our military program and all other work we do, even work for other agencies. The goal of that system, as you recall, is to work more closely with our customers and partners to ensure they get sound, mutually agreed-upon products in a timely and cost-effective manner.

Clearly, under our project management system, we rely very heavily on our team members—our human resources, thus, creating the individual and organizational competence to meet the challenge of the future is foremost in our minds. We have started a major program to shift toward human resources management as distinguished from the more sterile, or compliance-driven, personnel administration. We are trying to become more adept at creating a challenging and supportive work environment.

Developing and positioning talent in that enhanced work environment will assist us in approaching our goal of becoming an employer of choice.

LEADERSHIP ENHANCEMENT AND DEVELOPMENT

Development and enhancement of leadership, are key to that success. Thus, I am increasing the emphasis on leadership through several means, including directing the consideration of leadership, as well as technical competence, in the selection process. For executive positions, we have added leadership competence as a specific criterion.

We are also exploring ways, within limited flexibility of the Federal classification system, to encourage workers at the journeyman level to choose a technical or managerial career path so that their training programs could be tailored. Under this program, Corps workers with leadership interests and talents would receive the ap-

propriate work experience and training. Our goal is to develop people with leadership capabilities needed to lead the Corps into the 21st century.

RESEARCH AND DEVELOPMENT

Turning now to research and development, continuing our tradition of research and development to improve products and lessen their costs, our 1990 budget provides funding for a range of both new and continued R&D projects to improve procedures and technologies for project operation and maintenance.

Additionally, it provides for a three-year wetlands research and development program to find new and improved methods for managing and protecting inlands. And, finally, in support of our 1991 program, and consistent with our goal of balancing the authorization bills to be compatible with budget considerations every two years, we are completing development of proposed legislation for a Water Resource Development Act of 1990. I would like to emphasize that biennial authorizations are important to the orderly, predictable execution of our civil works mission, and in turn strengthening our partnerships with non-Federal sponsors. Such authorizations also promote optimal use of our technical, scientific, and management capabilities.

CONCLUSION

Mr. Chairman, in conclusion, we want to better accommodate our customers and partners economically and environmentally with sound projects. Accordingly, we strive to enhance our technical expertise, increase our environmental sensitivity, more fully adopt the beneficiary-pay concept, and improve the effectiveness, efficiency, and cost of our business operations. We are committed to serving better our Nation, and are looking forward to working with you and this subcommittee to that end. Sir, that completes my statement.

[The prepared statement of General Hatch and the Project Operation Plan of Study follows:]

DEPARTMENT OF THE ARMY

OFFICE OF THE CHIEF OF ENGINEERS

COMPLETE STATEMENT

OF

LT. GENERAL H. J. HATCH

CHIEF OF ENGINEERS

U. S. ARMY CORPS OF ENGINEERS

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

COMMITTEE ON APPROPRIATIONS

UNITED STATES HOUSE OF REPRESENTATIVES

ON

THE FISCAL YEAR 1991 CIVIL WORKS BUDGET

FEBRUARY 6, 1990

COMPLETE STATEMENT

OF

LT. GENERAL H. J. HATCH
CHIEF OF ENGINEERS
U. S. ARMY CORPS OF ENGINEERS

BEFORE THE

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

ON

THE FISCAL YEAR 1991 CIVIL WORKS BUDGET

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

INTRODUCTION

I am honored to be testifying to you today, along with the Assistant Secretary of the Army for Civil Works, Mr. Robert W. Page, on the President's FY 1991 Budget for the Army Corps of Engineers' Civil Works Program.

Thanks to your support, the Civil Works Program is vigorous, and I look forward to your continued support for this very important program, so beneficial to our Nation.

My statement addresses these four topics:

- Fiscal Year (FY) 1990 Program,
- FY 1991 President's Budget
- Improved Business Management
- Legislative Program

FY 1990 PROGRAM

Execution

The execution of the FY 1990 Program will be particularly challenging because of the number of the new starts and the other new work funded in the General Investigations and the Construction, General, programs.

In order to accommodate the increases to the General Investigations Program, some 25 of the new reconnaissance studies were funded at levels less than the required amounts. This will necessitate additional appropriations in FY 1991, or later, to complete these reconnaissance studies, and delay start of the follow-on feasibility studies until late FY 1991 or early FY 1992. To minimize this impact, we intend to reprogram available funds, to the fullest extent practicable, to provide the full FY 1990 requirements for these studies.

The FY 1990 appropriations also provided reduced funding for the 23 new preconstruction engineering and design studies. This will delay the studies somewhat, prolonging the completion.

In the Construction, General, Program, the added new starts and the other new work have contributed to a program with a funding level nearly 13 percent larger than that for the program in FY 1989. We will have to work closely with the sponsors to obtain the Local Cooperation Agreements required for the 23 added new starts in order to execute the funded program successfully.

Impacts of Sequestration and FY 1990 Pay Raise Absorption

In accordance with the Gramm-Rudman-Hollings (GRH) law, 1.4 percent of the amounts appropriated for our programs, projects, and activities was sequestered. The total sequestration for the Corps' civil program was $44 million, leaving $3.12 billion available. Given our reprogramming authority, we expect the resultant impact from the slippage in the execution of the funded activities and projects to be minor.

The 1990 pay raise of 3.6 percent for the civil program workers totals $37 million of which some $28 million will have to be absorbed within the FY 1990 appropriations. This may make it somewhat more difficult to maintain our work force at the authorized full strength, and may result in hiring delays, but the impact is certainly manageable.

FY 1991 PRESIDENT'S BUDGET

Overview

As the Assistant Secretary has said, the FY 1991 Program is a good one. For the first time, the Corps is submitting a budget which addresses not only the developmental needs of the Nation, but also the priority concern for preserving the environment from which we extract our sustenance and progress. The

TABLE A
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
FISCAL YEAR 1991 BUDGETED PROGRAM
(Dollars in Thousands)

APPROPRIATION TITLE	FEDERAL FUNDS				NON-FEDERAL FUNDS			TOTAL PROGRAM FUNDING		
	TRUST FUNDS			TOTAL FEDERAL BUDGET REQUEST	RIVER & HARBOR CONTRIBUTED FUNDS					
	INLAND WATERWAYS	HARBOR MAINTENANCE	GENERAL FUNDS		REQUIRED	ANCILLARY	TOTAL	INITIAL	LATER LEG. b/	TOTAL
GENERAL INVESTIGATIONS	-	-	135,400	135,400	19,500 a/	1,500	21,000	156,400	-	156,400
CONSTRUCTION, GENERAL	132,800	-	1,093,200	1,226,000	145,500	30,400	175,900	1,401,900	2,000	1,403,900
OPERATION AND MAINTENANCE, GENERAL	-	485,500 c/	904,000	d/1,389,500	4,000	3,000	7,000	1,396,500	-	1,396,500
REGULATORY PROGRAM	-	-	75,100	75,100	0	-	0	75,100	4,000	79,100
F.C., MISSISSIPPI RIVER & TRIB'S	-	-	334,500	334,500	3,000	100	3,100	337,600	-	337,600
GENERAL EXPENSES	-	-	136,100	136,100	0	-	0	136,100	-	136,100
FLOOD CONTROL & COASTAL EMERGENCIES	-	-	25,000	25,000	0	-	0	25,000	-	25,000
PERMANENT APPROPRIATIONS	-	-	12,000	12,000	0	-	0	12,000	-	12,000
TOTAL	132,800	485,500	2,715,300	3,333,600	172,000	35,000	207,000	3,540,600	6,000	3,546,600

a/ Includes $1.5 million under proposed legislation for phased-in cost sharing in the Flood Plain Management Services and Planning Assistance to States programs.

b/ Proposed for later transmittal pending enactment of authority to transfer the Bridge Alteration Program from the Coast Guard.

c/ Includes $192.5 million under existing legislation and $293 million in receipts which would result under proposed legislation to raise the ad valorem fee from 0.04 to 0.115 percent of cargo value.

d/ Includes $20.0 million to be derived from the Special Recreation Use Fee account.

TABLE B
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
FISCAL YEAR 1991 BUDGETED PROGRAM
(Dollars in Thousands)
FISCAL YEAR 1991 INITIATIVES (1)

APPROPRIATION TITLE/PROJECT NAME	BUDGET REQUEST
ENVIRONMENTAL MAINTENANCE AND RESTORATION:	
GENERAL INVESTIGATIONS	
Climate Change Research Program - Research & Development	$ 500
Columbia River Treaty Fishing Access Sites, OR and WA (PED)	450
Coordination With Other Agencies:	
National Estuary Program	200
North American Waterfowl Management Program	200
Missouri River Fish and Wildlife Mitigation, IA, NE, KS and MO (PED)	429
Richard B. Russell Dam and Lake, Wildlife Mitigation, GA and SC (PED)	300
CONSTRUCTION, GENERAL	
Columbia River Juvenile Fish Mitigation, WA, OR and ID	15,800
Project Modifications for Improvement of the Environment (Section 1135)	5,000
Tennessee-Tombigbee Waterway Wildlife Mitigation, AL and MS	20,000
OPERATION AND MAINTENANCE, GENERAL	
Wetlands Research Program	3,000
FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES	
Davis Pond Freshwater Diversion Structure-MS River Delta Region, LA & MS (Constr)	945
Yazoo Basin Backwater Project Mitigation, MS (Constr)	250
Yazoo Basin, MS - Reformulation Study	5,900
TOTAL - ENVIRONMENTAL MAINTENANCE AND RESTORATION INITIATIVES	52,974
INFRASTRUCTURE IMPROVEMENT:	
GENERAL INVESTIGATIONS	
Federal Strategy for America's Infrastructure	350
Magnetic Levitation Transportation Pilot Program	3,500
OPERATION AND MAINTENANCE, GENERAL	
Repair Evaluation Maintenance and Rehabilitation Research (REMR II)	4,000
TOTAL - INFRASTRUCTURE IMPROVEMENT INITIATIVES	7,850
TOTAL - FISCAL YEAR 1991 INITIATIVES	$ 60,824

(1) Includes Administration initiatives as well as Administration support for initiatives begun by Congress in prior years.

13 environmental initiatives run the gamut from the new research and development efforts designed to find the methods and the techniques for planning projects which are not environmentally threatening, to the mitigation of the adverse impacts of the past actions. Together, they clearly represent a comprehensive approach.

We truly believe that, in order to protect our agricultural, industrial, and technological economies, we must find environmentally sustainable ways to proceed. Ours is not an anti-development posture; it is a rational, sensitive, water resources development posture that looks to the future as well as the present.

Summary

As shown in Table A, funding of the FY 1991 Program totals $3.54 billion, including Federal appropriations of $3.33 billion and anticipated non-Federal contributions of $207 million. It includes $3.48 billion for continuing work and $61 million for the recommended initiatives.

The FY 1991 request for the Federal funding exceeds the FY 1990 post-sequestration appropriation by almost $215 million, with a corresponding increase of $47 million in contributions. Most of this $262 million total is attributable to the follow-on funding for the FY 1990 new starts. Also included is an allowance of some $51 million to cover the costs for the 3.6 percent pay raise approved for FY 1990 and 50 percent of the proposed pay

raise of 3.5 percent for FY 1991.

Extension of the Beneficiary-pay Principle

Consistent with the President's commitment to the user fees and the other beneficiary contribution authorities, this budget is based on several legislative and administrative changes to better finance the program. A breakdown of the planned increases in the non-Federal share, amounting to $331 million, is shown in Table B.

For the past two fiscal years, the non-Federal share has amounted to about 11 percent of the total funds appropriated for Federal expenditure. The proposed changes in cost sharing and user fees will raise the overall level of non-Federal contributions to about the 25 percent level of Federal funding. Most of the $331 million in new receipts would be available for appropriation to fund the Corps program and further reduce the amount of general funds required from the Treasury to pay for the Corps program. Given the growth in program funding since FY 1986, such an increase is needed if work currently planned is to be funded at an optimum level and the budget deficit targets are to be met.

The increase in the ad valorem fee, which generates receipts for the Harbor Maintenance Trust Fund, is intended to put the financing of commercial navigation maintenance on a basis similar to that required by the Water Resources Development Act of 1986 for other purposes - with the beneficiaries,

in lieu of a designated project sponsor, paying 100 percent of the allocated costs for such work. It is considered unlikely that the proposed increase will cause any discernable diversion of U. S. cargo since both imports and exports are subject to the fee. Additionally, authority is being sought to collect camping fees and fees for day use facilities, similar to the authority already given the U. S. Park Service. Together, the existing and proposed recreation fees would generate some $40 million in funds which is about 25 percent of the amount being requested for the operation and maintenance of Corps recreational facilities.

Cost sharing changes also are being proposed to assure that the non-Federal share will be the same for all beneficiaries of comparable services. We propose to cost share the technical services of planning and engineering currently being provided under the Corps' Planning Assistance to States Program, with the recipients paying up to 50 percent of the cost of such services. Similarly, certain services provided under the Flood Plain Management Program, e. g., the delineation of a floodway or the conduct of a hurricane evacuation study, which require the acquisition of new data or the undertaking of extensive technical analyses, also will be cost shared. Ultimately, the cost sharing will be the same (50 percent) as that required for feasibility studies. To ease the financial impacts on local sponsors, we propose to phase in the level of the cost sharing over a three year period, so that 10 percent would be required in FY 1991, 30 percent in FY 1992, and 50 percent thereafter.

Administratively, additional user fees will be levied for some of the technical services currently being provided specific beneficiaries, generally at Federal cost. Regulations are being drafted that will permit the collection of fees for providing technical data readily extractable from the available Flood Plain database and for processing permit applications and other requests under our Regulatory Program. In these cases, a variable fee schedule will be applied, reflective of the effort required for response to the individual requests.

Other Program Initiatives

We are quite proud of the engineering and construction support we provide to other Federal agencies on a reimbursable basis. Not only do the other agencies and taxpayers benefit from this support, but so do we in that our staff gains valuable experience for use in our traditional programs. Our diverse experience in civil, military, and other agency programs enables us to respond to whatever national problem we may be called upon to solve.

As the Assistant Secretary indicated, our biggest customer is the Environmental Protection Agency, which accounts for 77 percent of this work. The Federal Emergency Management Agency, Department of Energy, Department of Interior, and National Aeronautic and Space Administration account for most of the work for the remaining 26 Federal agencies we support. We stand ready to be of assistance to other Federal agencies as they address the Nation's problems.

One important initiative being funded focuses on the development of a Federal

strategy to address this Nation's many infrastructure problems, including those involving water resources, water supply, transportation, water quality, energy, and solid and hazardous wastes. Presently, there is neither an integrated Federal infrastructure policy nor an organization to coordinate development of that policy. With the Administration's approval, we are initiating a 3-year effort that should lead to a set of recommended actions, including legislative proposals, as needed. A Federal advisory board made up of those Federal agencies with responsibilities in infrastructure-related matters would be established to oversee development of the strategy. Development of the strategy would be based on the assumption that the Nation's infrastructure needs have already been adequately defined and entail examining selected strategies, including those of the National Council on Public Works Improvement, to determine what is needed to move to an implementation phase.

One of this Nation's critical and growing problems is its overburdened and deteriorating infrastructure. Little thought was given to the long term operation, maintenance, and rehabilitation costs that our infrastructure system would eventually place on the shoulders of future generations. It is clear that we need to develop solutions today so that we can rebuild our infrastructure with systems which promise reduced financial burdens for tomorrow. MAGLEV, the magnetically levitated high speed vehicle system, presently being investigated by the Corps, shows the promise of being a system that could be responsive to one of our needs. The MAGLEV Pilot Program now being planned would combine Government and U. S. private sector talents and

assets to develop an advanced transportation system for deployment during the next century. This system has the promise of low operating and maintenance costs, minimum impact on the environment, and high transport productivity. We think there could be no more valuable public investment in our future than to proceed with the MAGLEV development program as rapidly as possible.

IMPROVED BUSINESS MANAGEMENT

The Corps strives to improve both its effectiveness and its efficiency in order to reduce the cost of its business operations. To this end, we have placed renewed emphasis on the performance measures; initiated several organizational studies; focused the time and the energy on the development of the new leaders for the 21st Century; and increased the share of our research and development program dedicated to the product and the process improvements.

Effective Organization

We have begun several efforts to evaluate our organization in order to improve its effectiveness.

In keeping with the spirit of the FY 1990 Conference report, we will conduct a broad-based conceptual study of alternative organizational structures for our field operating agencies, with a view to:

- reducing program costs without adversely impacting quality of service;

- identifying factors and criteria for shaping most efficient organizational structures;

- identifying existing constraints against implementation of improved structures; and

- identifying factors, criteria, and constraints most relevant to organizational structures best for addressing the Nation's future engineering and environmental challenges.

Findings of this conceptual study will be considered, along with other pertinent information, by all interested parties, including Congress, in ultimately deciding whether to implement an alternative structure.

As mentioned by the Assistant Secretary, we propose a comprehensive review of management and resourcing policies and procedures for our Operation and Maintenance, General, and Flood Control, Mississippi River and Tributaries maintenance programs, with a view to providing continued or improved service under circumstances of deficit reduction and budget limitations. To this end, a plan of study has been prepared to guide a 1 1/2-year effort to address existing program productivity; intensive management; divestiture; modernization; and program development, execution, and monitoring procedures.

In late FY 1989, the Assistant Secretary challenged us to determine ways and means to maintain and enhance recreational opportunities, while reducing the Federal financial burden of operating and maintaining our recreation facilities. Accepting this challenge, we recently began such a study and established a task force to manage it. The task force includes a Policy Steering Committee chaired by the Deputy Chief of Engineers, General Kem, a Management Team to provide required recreation resource management expertise, and a study manager from our Institute for Water Resources. We have briefed staffs of involved Congressional authorization and appropriation committees and several interested regional groups on this study. Additionally, we have advised all State Governors of the study by letter, and asked for any comments. A few have responded, all with offers to assist.

And, finally, in coordination with OMB, the Corps will undertake a workforce management analysis to examine how manpower and funding are related in order to better predict manpower needs.

Project Management

The Corps is continuing its effort to improve work management. In fact, I recently reorganized headquarters for this very purpose.

Project management is afforded by the Life Cycle Project Management System, implemented in FY 1988 for the Corps' civil program, and through the recent reorganization, for its military program.

The guiding principle founding this system is that we work closely with customers to ensure they get sound, mutually agreed upon products in a timely, cost-effective manner. To this end, we have established the civilian position of Deputy District Engineer for Project Management in each of our 36 districts. Deputies in these positions provide leadership to individual project managers and project management teams who, in turn, provide leadership to project participants, including local sponsors.

In continual consultation with local sponsors, and in consonance with their views, to the fullest extent practicable, project managers and management teams develop, justify, and execute projects through construction. To this end, they develop project management plans, reflecting optimum costs and performance schedules. They continually assess progress against these schedules and, based on findings, take action to comply with or modify management plans, in order to complete projects in the most satisfactory ways possible.

We must and will meet our commitments to you and our partners.

Program Management

Program management has been accomplished, to a large degree, by our long-standing programming organization. Under our recent reorganization, the role of this organization was strengthened in that all facets of the civil program were incorporated into the Civil Works Directorate, under the

leadership of General Kelly, who assigned program management overview to Programs Division. In its new role, this division will, in addition to its traditional role of developing and defending the civil program, develop a strong analytic capability to assist the Director in answering some of the more difficult questions he will face in dealing with a stable program and declining resources.

Human Resource Management

Creating the individual and organizational competence to meet the challenge of the future is foremost in my mind. We have started a major program to shift our management team's focus toward human resource management, as distinguished from the more paper focused activities of personnel administration. As we become more adept at identifying, understanding, developing, and positioning talent in an environment that is challenging and supportive, we approach our human resources management goal of becoming the employer of choice. With what we know regarding the workforce of the future and the diminishing resources of today, we can't afford to do any less. At the cornerstone of our program is:

- aligning people and our systems for leading, managing and developing people with our vision, mission and challenges.

- understanding people and translating that understanding into the best fit between the person and the job (getting the right people in the right job doing the right things in the right environment).

Leadership Enhancement and Development

The development and enhancement of leadership are key to the success of much of what I've talked about here today. I am continuing and increasing the emphasis on leadership initiated by General Heiberg. We have several initiatives ongoing in this area. Perhaps the most significant one is the consideration of leadership as part of the selection process. I have advised all selecting officials that they must weigh leadership abilities when making selections. For executive positions, we've developed a method that adds a measure of leadership competence to the selection process.

We are also exploring ways, within the limited flexibility of the Federal classification system, to establish a program to encourage workers at the journeyman level to decide on a career path which is either primarily technical or primarily managerial, so that their training programs can be built around their career goals. Under this program, Corps managers will identify Corps workers with leadership potential, then target them for leadership grooming. Our goal is to develop leadership capabilities of the kind needed to lead the Corps into the 21st Century.

Research and Development

As part of our research and development to improve products and lessen their costs, we recently completed the Repair Evaluation, Maintenance, and Rehabilitation (REMR) I program. Savings from this program are expected to reach $200 million over the next five years. Our FY 1991 budget provides funding for an initiative, REMR II, and continuation of a range of ongoing work, including Construction Productivity Advancement Research and the Dredging Research program. REMR II and the Dredging Research programs are intended to yield improved procedures and technologies to reduce costs of project operation and maintenance, long-term. REMR II will address concrete and steel structures, and geotechnical, hydraulic, and coastal engineering problems, and is expected to result in savings comparable to those of its very successful precursor, REMR I.

We also propose initiating a 3-year, $22 million, Wetlands Research and Development Program to help the Nation's wetlands. This program is aimed at developing practical new and improved methods and techniques that can be applied in effectively managing, protecting, and restoring all established inland wetlands.

LEGISLATIVE PROGRAM

Overview

During their work to produce the landmark the Water Resources Development Act of 1986, following a 16 year hiatus in major authorization bills, the Administration and Congress worked together to reestablish a two-year cycle for such authorizations. This led to the Water Resources Development Act of 1988, furthering the important cost sharing reforms of the Water Resources Development Act of 1986, and adopting the idea of limited-size authorization bills compatible with realistic budget considerations.

Development Principles

We are completing development of proposed legislation for Congress for a Water Resources Development Act of 1990. This legislation is based on five principles which we believe are essential to passage of a Water Resources Development Act of 1990. They are:

- maintain the reforms of the Water Resources Development Act of 1986 and the Water Resources Development Act of 1988, preserving cost sharing principles and policies;

- limit the number and cost of authorizations, scoping legislation to be consistent with spending objectives, and including only economically justified and environmentally sound projects;

- exclude premature projects, including any not fully reviewed by the Executive Branch;

- advance the FY 1991 budget proposals for cost recovery in Army water resources projects; and

- promote use of the Corps' technical, scientific, and construction management expertise in partnership with the private sector to address infrastructure needs and to assist other governmental agencies.

We believe that adherence to these principles will lead to passage of a Water Resources Development Act of 1990. Biennial authorizations are important to the orderly, predictable execution of our civil works mission, and, in turn, strengthening of partnerships with non-Federal sponsors. These authorizations also promote optimal use of our technical, scientific, and management capabilities.

CONCLUSION

We want to find and implement new ways to better accommodate customers' needs and resources, that is, to provide them with the products they want within mutually agreed upon costs and schedules. To this end, we strive to improve effectiveness, efficiency, equitable cost sharing, and cost of our business operations.

We are trying to become more effective and efficient by better applying our human resources. This entails studying ways and means to improve operations through use of standards, reorganization, and leadership. Also, as discussed by the Assistant Secretary, we are exploring opportunities for partnering with private industry, whereby we engage contractors at project start in order to improve understanding and trust, and, ultimately, to expedite negotiations for work execution. We are tailoring our products to better serve our customers needs and resources, and are assuring delivery within costs and schedules through improved program and project management. This has brought into focus that project proponency is the role of local sponsors; not the Corps. Furthermore, it has enabled measuring and managing quality, cost, and time, accurately.

We are trying to distribute operation and maintenance costs more equitably by exploring opportunities to increase beneficiary cost sharing for harbor and recreation facilities and regulatory activities. And, finally, we continue to research and develop ways and means to improve products and reduce their costs.

In summary, we are committed to better serving our many customers and, through them, our great Nation, and are ever looking forward to working with you to this end.

TABLE A
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
SUMMARY OF PROGRAM AMOUNTS FOR FISCAL YEARS 1989, 1990, AND 1991
(Dollars in Thousands)

APPROPRIATION TITLE	FY 1989 (Approp.)	FY 1990 (Approp.) a/	FY 1991 Budget Request	
GENERAL INVESTIGATIONS	142,405	129,251	135,400	
CONSTRUCTION, GENERAL				
General Funds	1,110,266	966,477	1,093,200	b/
Inland Waterways Trust Funds	69,644	117,334	132,800	
TOTAL APPROPRIATION	1,179,910	1,083,811	1,226,000	
OPERATION AND MAINTENANCE, GENERAL				
General Funds	1,195,588	1,176,795	884,000	
Special Recreation Use Fees	15,000	19,720	20,000	
Harbor Maintenance Trust Funds	159,026	161,704	485,500	c/
TOTAL APPROPRIATION	1,369,614	1,358,219	1,389,500	
REGULATORY PROGRAM	63,752	68,455	75,100	d/
F.C., MISSISSIPPI RIVER & TRIB'S	337,980	330,296	334,500	
GENERAL EXPENSES	122,600	126,997	136,100	
F.C. & COASTAL EMERGENCIES	20,000	0	25,000	
REVOLVING FUND	0	9,860	0	
PERMANENT APPROPRIATIONS	12,000	12,000	12,000	
TOTAL, FEDERAL BUDGET AUTHORITY	3,248,261	3,118,889	3,333,600	
RIVERS AND HARBORS CONTRIBUTED FUNDS	129,596	160,000	207,000	
TOTAL PROGRAM	3,377,857	3,278,889	3,540,600	

a/ Reflects G-R-H sequester of 1.4 percent.

b/ Excludes $2.0 million which is proposed for later transmittal pending enactment of authority to transfer the Bridge Alteration Program from the U.S. Coast Guard.

c/ Includes $293 million which is dependent upon enactment of proposed legislation.

d/ Excludes $4.0 million which is proposed for later transmittal pending enactment of authority to transfer the Bridge Alteration Program from the U.S. Coast Guard.

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS - CIVIL WORKS

POLICY AND PROCEDURES OPTIONS FOR PROJECT OPERATION AND MAINTENANCE

PLAN OF STUDY

JANUARY 31, 1990

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INTRODUCTION

The Corps of Engineers has constructed about 230 locks and dams, 500 local flood protection projects, 370 reservoirs, 75 hydroelectric power plants, 800 commercial harbors, and 2,900 recreation areas. The vast majority of these facilities--with the exception of the local flood protection projects--are operated and maintained by the Corps itself.

The Corps budget for operation and maintenance (O&M)1/ has increased steadily for years to the point that it now exceeds the Civil Works construction program, and has become by far the largest of all program areas. In Fiscal Year 1990, the O&M program accounts for 45 percent of the total Corps Civil Works program, and it supports about half of the overall Civil Works workforce of the Corps.

This major program has come face-to-face with the exigencies of deficit reduction and budgetary limitations. This circumstance leads naturally to the conclusion that a comprehensive review of the program, conducted separately from the budget annual process, is timely, and probably urgent.

1/ Includes MR&T operation and maintenance.

This document outlines a plan of study for such a review. The study will be carried out principally by an outside contractor, with full use to be made of the results of ongoing studies being conducted by the Corps.2/ The contractor's effort may be supplemented, as may be deemed appropriate, by consultants. It will take approximately 1 1/2 years to complete the study, with results to be implemented in the Fiscal Year 1994 budget process. Particularly timely findings, such as could affect management of the recreation program, would be capitalized upon as soon as possible.

2/ The ongoing Corps studies/efforts are: 1) U.S. Army Corps of Engineers Conceptual Field Realignment Study; 2) Productivity Improvement Program; 3) Overhead and Accounting Study; 4) Recreation Task Force Study; and 5) The Development of the New Corps of Engineers Financial Management System.

I. INHERENT DIFFICULTY IN MANAGEMENT AND ANALYSIS OF THE OPERATION AND MAINTENANCE PROGRAM

While the mere size of the O&M program invites management attention, identifying possible efficiencies and sources of costs savings within this element of the Civil Works program is difficult. The difficulty arises from several factors.

First, many different activities are included under the O&M heading, ranging from low cost items (such as time spent at a district answering congressional inquiries or picking up trash at Corps projects) to major work items (rehabilitation of locks and dams). Furthermore, a significant part of the budget is in fixed costs--approximately 15 percent is for rent, equipment, utilities, etc.--that are difficult to assign to individual projects. The Corps, moreover, is decentralized in organization. Local commanders are given great flexibility in program execution. Inevitably the naturally differing responses of the districts may appear inconsistent. And the specific uses of funds may not be apparent until after the fact.

Second, there is uncertainty in developing the O&M program. The process of requesting funds begins as much as 2 and 1/2 years before some of the money is actually spent.

Since the budget is developed to accommodate planned and scheduled work, demands linked to unknown events, such as floods, droughts, and hurricanes, result in some of this planned work being deferred. The connection between budget requests and actual expenditures is lost when this occurs.

Third, when budget cuts are directed based on a feature cost code, such as recreational maintenance or natural resources, by the time the cut is made effective at the district level, there may be a considerable amount of unintended side effects. Services may be cut that were neither anticipated nor intended.

Finally, accommodating pressures to fund unbudgeted items, without regard to outputs or systematically established priorities, cause major changes to funds available for activities deemed important in program development.

Aside from the foregoing, any management review of the O&M program in the face of strong budgetary pressures immediately raises the subject of new methods of financing and executing the program. Among the possibilities that inspire analysis are such things as management improvements, operational improvements, contracting out, divestiture and additional user fees. There may be others.

II. OBJECTIVES/RESULTS ANTICIPATED

The ultimate objective is to assure that Federal expenditures for O&M of Corps projects are justified and are made in the most cost effective manner. The immediate output of the study is expected to be practicable measures--the policies and procedures--that could be applied toward that end. It will not yield project specific proposals for O&M spending, but rather identify the necessary actions for achieving this result.

The study will not duplicate ongoing studies and efforts relating to Corps organization, productivity improvement, recreation, and financial management system, but will use any data or results that become available from those studies and efforts.

As a basic principle, the study will presume that justifiable levels of service will be maintained at all projects.

III. DEVELOPMENT OF OPTIONS

Five broad categories of work or themes will be covered in the O&M Study. Briefly, the themes are:

> Productivity of the Existing Program 3/ - Given the way we are currently doing business, are there ways to save resources by having a much better understanding of what the FTE and dollar resource requirements really are? Can this information be used to increase the productivity of existing O&M procedures?

> Intensive Management - Are there new, more efficient ways of meeting mission objectives for O&M which are outside the methods currently employed by the Corps?

> Divestiture 4/ - Should some Corps facilities (either entire projects or portions thereof) be offered to non-Corps entities (local, State, other Federal agencies and the private sector) for ownership, operation, and maintenance?

> Modernization - Can the allocation of budget resources be improved by developing a tighter set of guidelines for determining the need for, and the extent and timing of, project expenditures associated with major rehabilitation? Are there opportunities to save long-term O&M by making modest investments in state-of-the-art technology at existing projects?

> Program Development, Execution and Monitoring Procedures 5/ - Can management of O&M activities be improved through changes in budget development, execution and monitoring procedures? This involves

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3/ Data and results that may become available from the ongoing studies of Corps organization, productivity improvement, overhead and accounting will be provided to the contractor.

4/ Data and results pertaining to unexploited opportunities for non-Corps public and private entities to operate and maintain recreation facilities and even to enhance recreation opportunities will be provided to the contractor.

5/ Data and results pertaining to improved financial management (accounting) systems will be provided to the contractor.

TABLE 8
DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS - CIVIL WORKS
NON-FEDERAL SHARE OF FY 1991 PROGRAM
(Dollars in Thousands)

APPROPRIATION TITLE	CURRENT AUTHORITIES & REGULATIONS				PROPOSED AUTHORITIES & REGULATIONS				RESULTANT INCREASE			
	USER FEES		COST SHARED		USER FEES		COST SHARED		USER FEES		COST SHARED	
	TRUST FUNDS	OTHERS	(RIV/HBR TR) a/	TOTAL	TRUST FUNDS	OTHERS	(RIV/HBR TR) a/	TOTAL	TRUST FUNDS	OTHERS	(RIV/HBR TR) a/	TOTAL
GENERAL INVESTIGATIONS	-		10,000	10,000	-	200 f/	19,300 j/	19,500	-	200	1,300	1,500
CONSTRUCTION, GENERAL	132,800 b/	-	145,500	278,300	132,800	-	145,500	278,300	-	-	-	0
OPERATION AND MAINTENANCE, GENERAL	192,800 c/	20,000 d/	4,000	216,500	486,800 g/	40,000 h/	4,000	529,500	293,000	20,000 h/	-	313,000
REGULATORY PROGRAM	-	500	-	500	-	17,000 i/	-	17,000	-	16,500	-	16,500
F.C., MISSISSIPPI RIVER & TRIB'S	-	-	3,000	3,000	-	-	3,000	3,000	-	-	-	0
GENERAL EXPENSES	-	-	-	0	-	-	-	0	-	-	-	0
FLOOD CONTROL & COASTAL EMERGENCIES	-	-	-	0	-	-	-	0	-	-	-	0
PERMANENT APPROPRIATIONS	-	12,000 e/	-	12,000	-	12,000	-	12,000	-	0	-	0
TOTAL	325,300	32,500	170,500	520,300	618,300	69,200	171,800	859,300	293,000	36,700	1,300	331,000

a/ Non-Federal cash contribution required in accordance with WRDA, 1986 provisions.

b/ Derived from fuel tax receipts collected for the Inland Waterways Trust Fund.

c/ Derived from ad valorem tax receipts (0.04 % of cargo value) collected for the Harbor Maintenance Trust Fund.

d/ Derived from user fees collected and deposited in the Special Recreation Use Fee account.

e/ Derived from user fees (including lease funds) collected and deposited in a Permanent appropriations account.

f/ To be generated from user fees administratively charged for providing technical data and assistance extracted from available data.

g/ Reflects an increase in Harbor Maintenance Trust Fund receipts resulting from raising ad valorem fee from 0.04 to 0.118 % of cargo value.

h/ Reflects an increase in user fees to be collected and deposited in the Special Recreation Use Fee account. Added fees would not be available for appropriation until FY 1992.

i/ Governmental receipts to be generated from increased user fees administratively charged in processing permits and other requests.

j/ Reflects increased contributions for services provided the beneficiaries, consistent with cost sharing provisions of WRDA, 1986.

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> exploration of two questions: first, can we develop a tighter link between the O&M budget justifications presented to Congress and what is actually done with funds appropriated? Second, can we create a better mechanism for allocating limited resources to the most productive uses?

Given the size and complexity of the O&M program, it is neither possible nor practical to address all five themes across the full spectrum of O&M activities. Instead, the themes have been matched to the budget feature cost codes which might be most affected by the changes contemplated for each theme, thereby maximizing the usefulness of the completed study. The results of the matching are shown in Table I. Conceptually, the themes identified in Table I disaggregate the total O&M budget into manageable parts. What is not shown in the table, but implicitly standing behind it, is a flow or branch framework, as illustrated in Figure 1.

Total O&M is first broken down into the separate categories: operation and maintenance. Then, each separate category is further divided into feature cost codes. Although the accompanying flow diagram (Figure 1) shows only three branches extending off each of the O&M limbs, theoretically there are as many branches as there are feature cost codes. From the diagram we see that, for example, lock and dam operations would be further subdivided into productivity and intensive management. These last two extensions of the model represent themes which will apply to that particular feature cost code.

DISAGGREGATION OF O&M

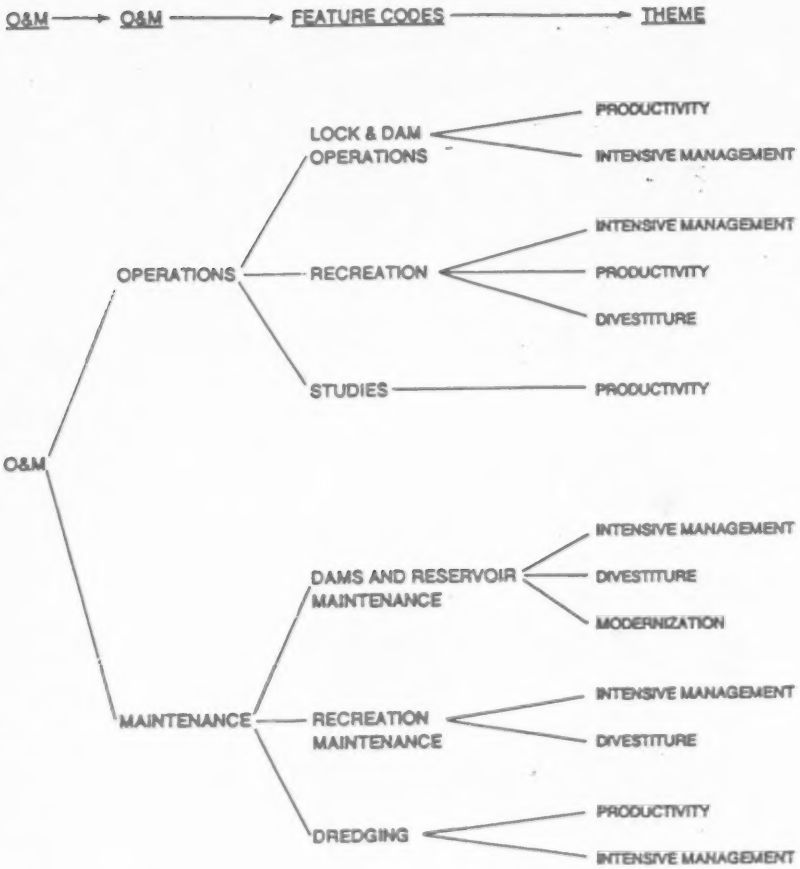

Figure 1

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Regarding Table 1, time and resource constraints preclude a complete analysis of all 85 work categories of the O&M program. Table 1 has consolidated these into 28 similar or like categories. The feature cost codes identified for study have been noted with an asterisk. A double asterisk indicates feature cost codes that may be included if data are readily available. The percentages of funding the two separate O&M program elements which are touched by each theme are given at the bottom of the columns.

Further details on each theme, together with some specific examples or elaboration, follow.

Productivity of Existing Program

This study will undertake an evaluation of program productivity from three perspectives, as described below.

The first approach will display the direct and indirect charges for each district by organization functions such as engineering, planning, operations, and construction. (See, for example, Table A, Appendix). Data will be analyzed to determine the variability in the composition of costs among districts. The results may be used either to confirm Corps-wide consistency or pinpoint certain districts for a review of their activities. For example, the ratio of overhead costs to direct labor costs may be unusually high in one or two districts. Others may spend a relatively high amount on other direct charges.

The second approach will relate specific program outputs, such as dredging amounts (cubic yards), to the dollar or workyear inputs by district. As in the first approach, deviations in the average relationship can be observed and reasons sought for the extreme cases, both the "most efficient" and the "least efficient". Figure A in the Appendix illustrates how the relationships can be displayed. Explanations of the significant variations observed for

certain districts would be based in part on the cost analysis in the first approach, as well as on an analysis (qualitative or quantitative) of existing operations. Target output for the second approach is reproduced in Table B in the Appendix.

The third approach will compare the O&M activities of Corps districts to similar activities performed by other organizations. The analysis will be based on the statistical results of the first and second approaches and the experience of the other agencies.

Program productivity in the O&M arena is very difficult to measure and understand, given the wide variances in outputs. This section of the study will develop the foundation from which policies and procedures will be put in place to measure the Corps' total program. Better procedures and/or shifts in program management responsibilities may be indicated.

Intensive Management

Intensive management means the conception and application of new initiatives and procedures primarily for the operation of Corps projects. The category applies primarily

to locks, dams, reservoirs, power plants, and navigation channels. (Recreation is being addressed by an existing task force). The new procedures include such things as:

> Changes in periods of service, e.g., hours of operation of locks.

> Changes in levels of service, e.g., linehandlers that used to aid commercial tows have been eliminated.

> The contracting out of project operations, including, for example, lock or power plant operations.

> Dredge channels only to dimensions justified by using traffic--may be less than authorized dimensions.

> Require cost of "condition surveys" of harbors and ports be a non-Federal responsibility.

It is expected that the study will identify other possibilities along these lines.

Divestiture

This is the concept of non-Federal management and ownership of traditionally Corps-managed projects or parts of projects. An example is Wynochee Lake in Washington where the local sponsor is willing to operate and maintain the entire project in return for the opportunity to install a hydroelectric power plant and receive the power revenues.

Similar opportunities may exist where there is potential for increasing local water supplies or for obtaining revenue from other project-related enterprises. Other examples include:

> Turnover of multipurpose reservoirs to State or other non-Federal agencies.

> Turnover of single purpose flood control reservoirs to sponsors (the Corps has 73 "dry reservoirs").

> Turnover of single user navigation channels to the user or to the project sponsor.

> Turnover of recreation facilities to non-Federal interests (already under study by an in-house task force).

> Combining operations with other Federal agencies in the same geographic proximity.

This part of the overall study would identify any incentives that might be necessary to motivate non-Federal interests toward ownership, operation and maintenance of all or part of those Corps projects susceptible to such arrangements.

Modernization

Once a project has been competed, O&M costs begin. The scheduling of maintenance in particular will have a significant impact on the project's ability to perform as planned.

All costs to rehabilitate components of a project affected by aging, whether these costs are minor and routine or involve major outlays, are considered under the O&M budget.

Routine maintenance, major maintenance, and rehabilitation are linked by time and policy. A project which is scrupulously maintained from its very inception may never require rehabilitation. In other cases, periodic large scale rehabilitative work might prove less expensive than routine day-to-day care. Also, due to improved technology and state-of-the-art engineering developments, large scale expenditures of a reconstructive nature could produce significant cost savings on annual routine maintenance.

Selected projects in the Corps inventory will be evaluated on the basis of the timing and scheduling of maintenance to determine whether the long-run O&M costs have been minimized. In those cases where changes in the O&M schedule and/or activity can be identified, the existing policies and procedures will be updated.

Program Development, Execution, and Monitoring Procedures

Management of the O&M program is complicated by two main factors. First, by its nature, O&M must be responsive to actual conditions rather than conditions predetermined in

advance. Therefore, there must be spending flexibility provided to field offices--a flexibility which cannot be accommodated by budget justification procedures that presume direct central control in accordance with O&M demands identified 1 to 2 years in advance. The degree of flexibility is the key issue here.

Another factor complicating O&M management is the absence of a process to analytically examine changing priorities over time. Also, projects have been built over several decades, during which time great changes in philosophy as to the proper role of government have occurred. Should individual projects, built at different times to serve different objectives, be managed as originally contemplated or should current objectives be applied across-the-board? Both budget stringencies and changing economics and policy conditions mean that the O&M levels originally anticipated for any project may need to be modified in the process of managing the portfolio of projects within budget constraints. Simply stated, effective program management requires that original project plans and desired services will need to be continuously reviewed and be subject to revision as part of a portfolio management plan.

These problems in O&M management will be addressed in this study. The problem of anticipating O&M demands and providing justification must be translated from the project level to the program level. The study will determine whether credible procedures are being used for evaluating the condition of projects in the portfolio based upon age, condition, and other factors. If acceptable procedures are available, it should be possible to estimate O&M requirements without specifying precisely how O&M funds would be used. To address these matters, an "audit" of how well actual spending conforms to the budget justification will provide valuable insight that can aid in future program development. This is an essential ingredient to effective monitoring and reporting.

An inventory of the age and condition of Corps projects, by selected categories, needs to be developed. For those categories, the current level of project services will be identified and O&M costs to maintain the current service level over time will be computed in recognition of the age and condition of projects now in place and new projects expected to be added. This approach provides a baseline of current and near-term future O&M program level demands. Using this baseline, and in combination with other findings of this study (intensive management, divestiture, etc.), alternative scenarios for the O&M program over time can be developed.

IV. STUDY MANAGEMENT, EXECUTION, SCHEDULE AND BUDGET

As the first major step toward the ultimate objective, the study outlined herein would be carried out by a major private firm with familiar with operation and maintenance of large capital investments. This being the case, management of the O&M study could be quite different from that of a major in-house study. For example, the existing Recreation Task Force receives broad direction from a high-level policy steering committee (which might also handle the O&M study) and is managed day-to-day by a large management team, consisting of representatives of every major unit in Corps Headquarters.

Study Organization

For the O&M Study, the management arrangement shown on Figure 2 is proposed. This streamlined organization is intended to provide clear direction, responsibility, and accountability to the overall effort. It should be especially pointed out that designation of study manager, preparation of the request for proposals (RFP), and the consultant contract are critical, and they must be carefully done if any chance of success is to be realized.

TABLE I .

POLICIES/PROCEDURES TO BE ANALYZED WITHIN SELECTED O&M FEATURE COST CODES BY STUDY THEME

Feature Cost Title	Feature Cost Code	FY 1991 Budget ($000)	STUDY THEME: Productivity	Intensive Management	Divestiture	Modernization	Prog. Development, Exec. & Monitoring
OPERATIONS							
Lock Operations	1.1	103,642	•	•	•		
Dam Operations	1.2	39,734		•	•		
Reservoir Operations	1.3	20,383		•	•		
Facilities, Rds, Br., Bldgs & Equip	2.1 - 2.4	88,787		•			
Levees & Pumping Plants	3.1 - 3.2	11,715					
Power Plant	4.0	46,733		•	•	•	
Natural Resources	5.1 - 5.4	37,164					
Recreation & Visitor Center	6.1 - 6.4	119,557	•	•	•		
Survey, Study, Insp Cmpl Wks	7.11 - 7.8	106,222	••	•			
Remove Sunken Vessels	8.0	1,000		•			
Water Control	9.1 - 9.3	78,624	••	•		•	
Inspections & Special Reports	10.11 - 10.22	6,354					
Real Estate Activities	11.	15,357	•	•			
Other	12. - 16	18,902					
Summary: Operations		673,173	62.8%	89.0%	48.0%	18.3%	
MAINTENANCE							
Lands & Boundaries	20 - 20.62	11,258					
Dam & Reservoir Maintenance	21 - 21.2	78,208	••	•	•	•	
Locks & Salt Water Control	22.1 - 22.3	61,278	••	•		•	
Power Plant	23.1 - 23.5	70,997	•	•	•	•	
Natural Resources	24.1 - 24.3	7,429					
Roads	25 - 25.3	15,785			•	•	
Breakwater, Jetty & Seawall	26.1	25,772				•	
Levees, Floodwalls & Hurricane	27.1	19,400		•	•		
Pumping Plant	28.1	1,417		•	•	•	
Maintenance - Recreational	29.1 - 29.9	45,049	••		•	•	
Permanent Operating Equipment	30.1 - 30.4	13,833					
Bank Stabilization	31	52,040	•	•			
Buildings Grounds & Utilities	32.1 - 32.62	12,816					
Dredging, Disposal Sites, etc.	33.1 - 33.32	444,450	•	•	•		
Dam Safety Studies	34.12	480					
Summary: Maintenance		858,212	87.4%	84.6%	78.5%	34.5%	
Income and Credits	*80*	*(3,657)*					
Savings and Slippages	*95*	*(17,662)*					
Summary: O&M Total 1/		1,510,066	76.5%	86.5%	65.5%	27.4%	

• Single indicates that work will be definitely included in final study.

•• Double indicates areas that may be included.

1/ Includes $1,389,500k in O&M, General, and $120,566k in MR&T (Maintenance).

In the execution of the study, it is expected that monthly progress reports by the contractor would be carefully reviewed and that a specific finding by the Government, as to whether the contract should continue or be cancelled, would be required quarterly. Finally, the project manager would be directly responsible and accountable for the prosecution of the study--serving as point of contact for the contractor--and would receive commensurate authority.

Study Schedule

A study schedule is presented in Figure 3. Separate in-house studies of productivity and recreation are shown as underway in months 1 and 2 and continuing at least through the RFP stage of the study. Information from these separate studies will be incorporated in the RFP and by the contractor as they become available. Corps field and headquarters staff will furnish available data.

Study Cost Estimate

A preliminary study cost estimate is shown on Figure 4. The cost estimate includes contractor costs only. It is pointed out that the final costs may be substantially different, and will not be known until the contract is negotiated.

STUDY COST ESTIMATE

Element	Data Collection	Analysis	Options Formulation	Impact Analysis	Write-up Draft	Rewrite Final	
			TIME (WEEKS)				
Productivity	8	12	8	12	6	4	
Intensive Mgmt	8	12	8	12	6	4	
Divestiture	8	12	8	12	6	4	
Modernization	8	12	8	12	6	4	
Program Devlpmt	8	12	12	12	6	4	
			COST ($1,000)				
							Total
Productivity	$50	$75	$60	$60	$20	$10	$275
Intensive Mgmt	50	75	60	75	20	10	290
Divestiture	50	75	60	75	20	10	290
Modernization	50	75	60	75	20	10	290
Program Devlpmt	60	80	20	75	20	10	320
						SAY	$1500

* Based upon $10,000 per person-month

Figure 4

V. EVALUATION AND PRELIMINARY SELECTION OF OPTIONS

The contractor is expected to evaluate all options that his investigation brings to light, and to identify those that his analysis suggests are the most practicable in order of their importance and effect.

The Study Manager and Steering Committee will consider the contractor's results and make proposals. Final selection of options, and decisions for implementation, will be by the Assistant Secretary of the Army (Civil Works), after receiving the proposals of the Steering Committee and the Chief of Engineers' recommendations.

VI. COORDINATION WITH USERS AND OTHERS

It is expected that the contractor will contact other entities and individuals to whatever extent may be necessary to carry out the work. Such contacts will be specified in general in the RFP and the contract. For example, the consultant may be required to develop comparisons between, say, the Corps, the California Department of Water Resources, the Pacific Gas and Electric Company or others who operate water projects. Also, he will need contacts with users of project services in appraising user fees, and with various non-Corps agencies in analyzing divestiture.

The contractor would not, however, be expected to obtain general public comments on anything, nor to conduct any sort of public hearing. Any such process would be carried out by the Department of the Army itself after selecting any alternatives identified by the consultants.

A P P E N D I X

TABLE A

CATEGORIES OF OPERATION AND MAINTENANCE COSTS

DIRECT LABOR CHARGES:

- Divisions
  - Operations
  - Planning
  - Engineering
  - Construction
  - All Other

OTHER DIRECT CHARGES:

- Use of Corps Equipment
- Contracts with Outside Firms
- All Other

OVERHEAD:

- Technical Indirect Charges:
  - Operations
  - Planning
  - Engineering
  - Construction
  - All Other
- G&A Overhead

NOTE: To the extent possible, data will be presented separately for separate O&M activities.

TABLE B

COST STRUCTURE OF DISTRICT X, O&M FEATURE COST CODE Y

OUTPUT: _____.	Expected Level of Expenditure 1/	Actual Expenditure, District	Perceived Reasons for Differences 2/
DIRECT LABOR CHARGES:			
- Divisions			
- Operations			
- Planning			
- Engineering			
- Construction			
- All Other			
OTHER DIRECT CHARGES:			
- Use of Corps Equipment			
- Contracts with Outside Firms			
- All Other			
INDIRECT CHARGES:			

1/ Expected level of expenditure is shown by the curve in Figure 1 and is based on the actual output of the District.

2/ Based on qualitative analysis of districts and statistical measures as applicable.

ORGANIZATION FOR O&M STUDY

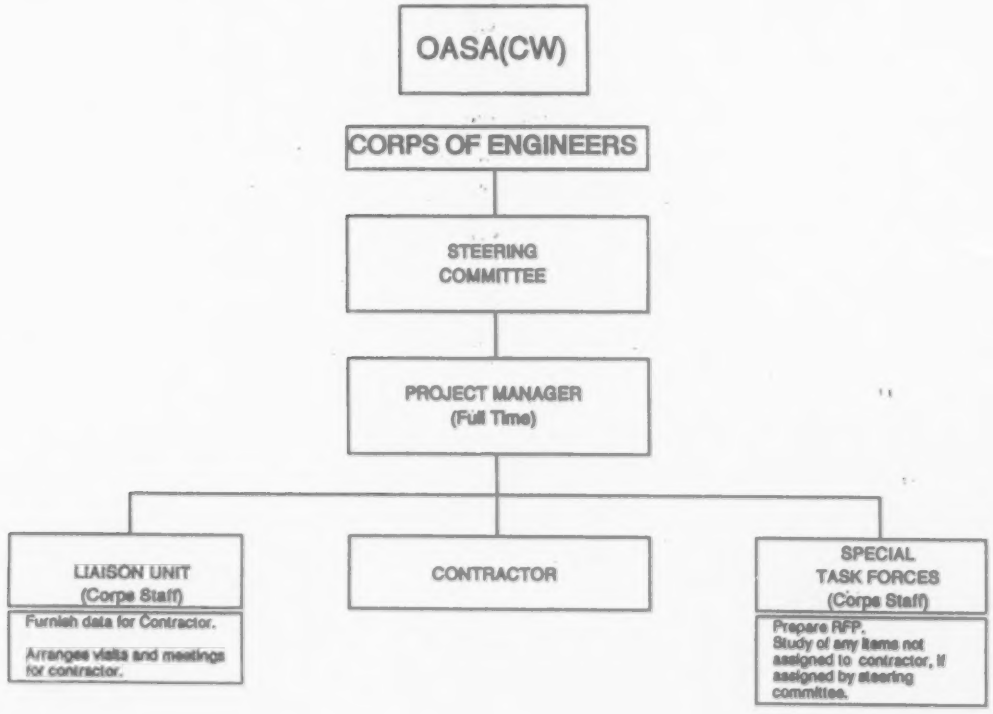

OASA(CW)
CORPS OF ENGINEERS
STEERING COMMITTEE
PROJECT MANAGER (Full Time)
LIAISON UNIT (Corps Staff)
Furnish data for Contractor.
Arranges visits and meetings for contractor.
CONTRACTOR
SPECIAL TASK FORCES (Corps Staff)
Prepare RFP.
Study of any items not assigned to contractor, if assigned by steering committee.

Figure 2

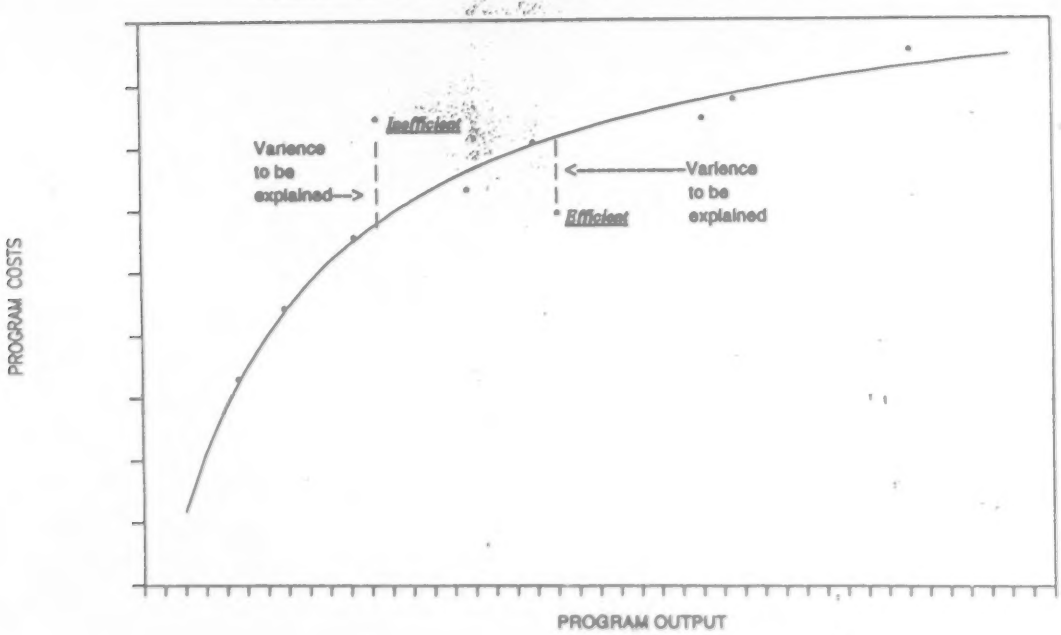
STUDY SCHEDULE

MONTH NO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
YEAR:	90												91										
MONTH:	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
STUDY TASKS																							
1. Plan of Study	F																						
2. Contractor Selection	R	R	R	R	R	R	R																
3. Development of Options		A	A	A	A	A	A	A															
Productivity	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C			
Intensive Management								C	C	C	C	C	C	C	C	C	C	C	C	C			
Divestiture	S	S	S	S	S	S	S	S/C	S/C	C	C	C	C	C	C	C	C	C	C	C			
Modernization								C	C	C	C	C	C	C	C	C	C	C	C	C			
Program Development	S	S	S	S	S	S	S	C	C	C	C	C	C	C	C	C	C	C	C	C			
4. Selection of Options for Use in FY 1994 Budget													B	B	B	B	B	B	B	B	B	B	F
SUMMARY: KEY MILESTONES																							
Contract Awarded							X																
Contract Completed																				X			
Separate Corps Productivity Study Interim Results						X																	
Separate Corps Recreation Study Completed									X														
Separate Corps Realignment Study Completed									X														
Separate Corps Financial Mgmt Study Completed																X							
Final Decisions, etc.																							X

Legend

A - Assembly of information and data by Corps
B - Corps Review and Recommendations to ASA(CW)
C - Contractor develops options
F - Final form by Corps/Army
R - Prepare RFP and Select Contractor
S - Separate Corps Task Force Study or separate ongoing Corps studies

PROBABLE RELATIONSHIP BETWEEN PROGRAM OUTPUT AND COSTS



NOTES:

* Represents individual district
Curvature represents possible economies of scale

Figure A

ADOPTION OF RULE FOR QUESTIONING

Mr. BEVILL. Very good.

Without objection of the members of the panel, I would like to adopt a rule that we have used before, that each member have 10 minutes for questioning on the first round, and then as much time as wanted on the second round. In the past, some members have had other urgent meetings to attend and failed to get an opportunity to ask questions. So, without objection, we will put that rule into effect.

APALACHICOLA-CHATTAHOOCHEE-FLINT AND ALABAMA-COOSA REGIONAL STUDY

Mr. Secretary, as you know, water is our most precious resource. Therefore, any proposal to reallocate limited water supplies from one purpose to another or divert water from one basin to another must be examined very carefully.

The Corps of Engineers' Mobile District is considering the reallocation of reservoir storage at three projects in the Coosa and Chattahoochee River basins that would affect water users in Alabama, Georgia and Florida. I believe that the ultimate resolution of this issue will depend on the Governors of the States involved reaching agreements on the allocation of water.

Because of my concern for the potential cumulative impacts the proposed reallocation of reservoir storage could have, and the need for the Governors to have the necessary information on which to base an agreement, in November, I asked General Kelly to prepare a conceptual plan for a comprehensive study of the Coosa and Chattahoochee River basins, to address the long-term water requirements of Alabama, Georgia, and Florida. What is the status of that plan and your efforts to encourage interstate cooperation to resolve these issues?

Mr. PAGE. Mr. Chairman, that study was to have been completed, I understand, by February 1st. The report was sent to headquarters, but was not complete. Further study is needed to satisfy what we think you have asked us to do. They are now making a restudy. We expect that to be completed by the end of this month.

We will continue to work with you and others to develop cohesive working relationships between the States or State agencies. You can be assured that we are well aware of what is happening here. In fact, I, personally, will be involved towards the end of this month.

Mr. BEVILL. General Kelly, do you wish to comment?

General KELLY. No, sir, I think the Secretary has covered that adequately.

Mr. BEVILL. I am disappointed that we didn't get the report, but, at the same time, I want it to be complete. So, we will be looking forward to it at the end of this month.

General KELLY. Yes, sir.

Mr. BEVILL. You may be assured that I will continue to give these issues my utmost attention, and I ask that you keep me fully informed of any actions that you take with regard to these proposals.

Because of the significance of this issue, I also believe it would be beneficial to have a second opinion on the proposed reallocations.

Therefore, I have asked the Tennessee Valley Authority and the Oak Ridge National Laboratory, who are experienced in this field, to make independent appraisals of the Corps' plans. So, I want to pass that on for your information.

OPEN VERSUS RESTRICTED COMPETITION IN CONSTRUCTION

Mr. Secretary, would you comment, based on your own experience in the construction industry, on the advantages of open competition versus restricted competition on construction projects?

Mr. PAGE. Yes, sir, I will. I think, based on my experience both outside and inside the government, that open competition is healthful for our industry and its ability to compete. It has served us well for many years. In a lot of ways, it has given us good product with less cost, that is, as long as the competition has been fair. And whether the competing contractors be small or large, it is important that they be not only competitive but that they be competent.

We have been working conscientiously to include small businesses. There has been a great deal of discussion on that. But, I can assure you, I believe in and expect fair and complete competition.

Mr. BEVILL. I have several other questions, but in order to stay within the time limit the committee has adopted, I will submit them for the record and will yield to Chairman Jamie Whitten.

[The information follows:]

ADMINISTRATION'S VIEW ON WATER RESOURCES DEVELOPMENT

Mr. BEVILL. Mr. Secretary, the Corps of Engineers FY 1991 budget request contains no new reconnaissance studies and no new construction starts. However, it does contain almost $61 million in environmental and infrastructure improvement initiatives.

Is the Administration trying to move the Corps of Engineers away from its authorized mission of water resources development which has been so beneficial to the Nation over the years?

Mr. PAGE. No, Mr. Chairman, the Administration is strongly supportive of the water resources development mission. The follow-on requirements of new starts and other new work funded for initiation in FY 90 carry the potential to strain available resources over the next few years. Consequently, we made a one year decision not to fund major new traditional construction projects and to severely constrain new planning efforts. We did wish to signal the desire of the Administration to support the maintenance and restoration of the environment through Civil Works funding and to further recognize the Corps' capabilities and expertise in infrastructure development, broadly defined. All of the environmental initiatives are supportive - either directly or indirectly of our water resources development mission, as is $4 million of the $8 million requested for the infrastructure-related activities.

STUDIES AND PROJECTS NOT BUDGETED IN FY 1991

Mr. BEVILL. The President's budget request does not contain funds to continue a number of planning and construction projects that are currently underway. Please provide a list of those projects for the record. What is your rationale for not continuing those projects under construction? Does the budget request include termination costs associated with stopping those projects that are under construction?

Mr. PAGE. Studies and projects/elements which are or are expected to be underway in FY 1990 but for which no funds are included in the President's FY 1991 budget are listed below. The seven ongoing projects/elements on the Construction, General list are inconsistent with the Executive Branch policy framework and desire to carry out a uniform national program and thus have been accorded low budgetary priority. These lower priority projects/elements are expected to have unfunded construction requirements in FY 1991. The budget request does not include termination costs associated with stopping these projects/elements after FY 1990. Therefore, funds would have to be reprogrammed to them to cover termination costs in the event Congress agrees with the budget.

(The Information follows:)

GENERAL INVESTIGATIONS STUDIES/PROJECTS
NOT INCLUDED IN THE PRESIDENT'S FY 1991 BUDGET

STUDY/PROJECT

BETHEL BANK STABILIZATION, AK

RED RIVER WATERWAY, INDEX, AR, TO DENISON DAM, TX

RANCHO PALOS VERDES, CA

SOUTH CENTRAL FLORIDA SIMULATION MODEL, FL

MCCOOK AND THORNTON RESERVOIRS (CUP), IL

LAKE GEORGE, HOBART, IN

WABASH VALLEY SCENIC CORRIDOR AT LAFAYETTE, IN

GULF INTRACOASTAL WATERWAY, LA & TX SECTION

WEST BANK OF THE MISS RIVER IN THE VICINITY OF NEW ORLEANS, LA

CONNECTICUT RIVER, STREAMBANK EROSION, MA

TOMBIGBEE RIVER AND TRIBUTARIES, MS & AL

NEW JERSEY SHORE PROTECTION, NJ

ONONDAGA LAKE, NY

ALBERMARLE & PAMLICO SOUNDS (NATL ESTUARINE STUDY PROGRAM), NC

LAKE ERIE - OHIO RIVER CANAL, OH & PA

MUSKINGUM RIVER WATERWAY, OH

WYOMING VALLEY LEVEE RAISING, PA

CYPRESS CREEK, TX

LACONNER, WA

CONSTRUCTION, GENERAL PROJECTS/ELEMENTS
NOT INCLUDED IN THE PRESIDENT'S FY 1991 BUDGET

PROJECT/ELEMENT	RATIONALE
SHINNECOCK INLET, NY	HIGH O&M COSTS AND PROPORTION OF RECREATION BENEFITS
DES MOINES RECREATION RIVER AND GREENBELT, IA	PRIMARILY RECREATION, NON-COST SHARED
RED RIVER WATERWAY, LA, LOCKS AND DAMS 4 AND 5	UNECONOMICAL BASED ON MAINLINE BENEFITS
BARBOURVILLE, KY, ELEMENT OF LEVISA AND TUG FORKS PROJECT	UNECONOMICAL, NON-COST SHARED ELEMENT
HARLAN, KY, ELEMENT OF LEVISA AND TUG FORKS PROJECT	UNECONOMICAL, NON-COST SHARED ELEMENT
O'HARE RESERVOIR, IL	URBAN DRAINAGE
WALLISVILLE LAKE, TX	SINGLE PURPOSE WATER SUPPLY

HARBOR MAINTENANCE TRUST FUND

Mr. BEVILL. The budget request contains proposals to raise revenues by increasing payments to the Harbor Maintenance Trust Fund and by expanding the authority of the Corps to collect recreation user fees. The proposals are structured such that the fees collected are not used to offset the appropriations required to operate and maintain those projects. Under those circumstances, do you believe that the project users will support the Administration's proposals?

Mr. PAGE. Insofar as these revenues will provide an assurance that services provided by the Corps of Engineers will continue, the increases will be supported. In the case of the Harbor Maintenance Trust Fund, the operation and maintenance of commercial harbors are essential to the ports' ability to do business and also are essential to this Nation's economy.

HARBOR MAINTENANCE TRUST FUND

Mr. BEVILL. Has the proposed increase in the ad valorem fee on cargo loaded and unloaded at ports been discussed with shippers?

Mr. PAGE. We have not discussed the proposed increase with shippers.

Mr. BEVILL. Has an analysis been done of the proposed increase in the ad valorem fee to determine any impacts on U.S. competitiveness or on the possible movement of cargo from one port to another?

Mr. PAGE. Section 1407 of the Water Resources Development Act of 1986 authorized the Secretary of the Treasury to conduct a study of the impact of the 0.04 percent Harbor Maintenance Fee on potential diversions of cargo from U.S. ports to ports in Canada or Mexico. This study (not dated but completed late in 1988) found no cases of diversion due to the Harbor Maintenance Fee. Although, to my knowledge, there are no plans for conducting another impact study of this type, I would expect the findings to be similar for a 0.125 percent Harbor Maintenance Fee.

The proposed increase in the fee would add $8.50 to the cost of transporting cargo with a value of $10,000. Most U.S. exports are low-value bulk commodities such as grain and coal. The proposed increase in the Harbor Maintenance Fee would add about $0.07 to the cost of a ton of corn and about $0.11 to a ton of wheat with a value of $85.32 and $127.54, respectively. Coal would increase about $0.04 a ton, and crude petroleum less than $0.03 a barrel. Given the other cost factors making up the price of a commodity, it is unlikely that this increase in the Harbor Maintenance Fee would cause U.S. cargo to be diverted to Canada or Mexico. Please remember that the fee is on imports as well as exports, but the fee increase for a $9,000 imported foreign car would only be about $7.65.

HARBOR MAINTENANCE TRUST FUND

Mr. BEVILL. Please describe for the record the $5 million in administrative costs that will be paid for by the increased ad valorem fee.

Mr. PAGE. The $5 million cost to administer the Harbor Maintenance Fee and Trust Fund primarily will be used to cover the costs of the U.S. Customs Service. Their job is to collect the fees, monitor imports, and enforce the penalties for non-compliance. Based on Custom Service cost estimates of prior years, we would expect their costs to be between $3-4 million per year. This would be mostly for auditors and Federal enforcement. The Bureau of Census would be monitoring exports for non-compliance, and the Army Corps of Engineers would monitor domestic shipments subject to the fee. The Corps of Engineers has estimated that they would need about $300,000-400,000 per year to provide this service to Customs, not including a one-time start-up cost of about $200,000 to $300,000. Although we have received no firm estimates from the Bureau of Census, I would expect their costs to be of a similar magnitude.

REGULATORY FEES

Mr. BEVILL. The budget also states that you plan to administratively increase permit processing fees under the Corps regulatory program. What is your authority to charge these fees?

Mr. PAGE. The statutory authority for the establishment of the regulatory fee structure is set forth in the Independent Offices Appropriation Act, 31 U.S.C. 9701, and implementing guidance is provided by the Office of Management and Budget in Budget Circular No. A-25.

Mr. BEVILL. How much will the fees increase under your proposal?

Mr. PAGE. Currently, we charge $10 for permits issued for private projects and $100 for those issued for commercial projects. Under the new system, we propose to charge an application fee of from $100 to $500 for private projects, depending upon the kind of permit to be issued. Fees for applications to build commercial or revenue-producing public projects are anticipated to range from $100 to $2,000. The detailed fee schedule has not been completed.

Mr. BEVILL. Have regulations been issued announcing the revised fee schedule?

Mr. PAGE. No. We expect to publish proposed regulations early this spring. The proposed regulations will allow an opportunity for public comment before any final decisions are made concerning the fee schedule. We plan to implement the final regulations by October 1, 1990.

Mr. BEVILL. Do you anticipate that the increased fees will reduce the number of permit applications?

Mr. PAGE. While predictions are difficult, it would seem that permit applicants may be more inclined to make their projects conform with one of the lower fee general permits. They also may be less likely to submit permit applications which are speculative in nature.

Mr. BEVILL. Are there now fees for jurisdictional determinations, environmental impact statements, and public hearings?

Mr. PAGE. Not in a strict sense, however, applicants now bear the majority of the costs for developing the information necessary to prepare environmental impact statements and, in many cases, provide techincal information for jurisdictional determinations. Under the proposed schedule, all three of these services would require fees.

NEW FEASIBILITY STUDIES

Mr. BEVILL. The FY 1991 budget request for the Corps contains no new reconnaissance studies. Does the budget request include new feasibility studies? Please provide a list of those studies.

Mr. PAGE. A list of the new feasibility included in the FY 1991 budget request will be provided.

[The list of studies follows:]

FY 1991 NEW FEASIBILTY STUDIES

DIVISION	STUDY NAME	FY 1991 REQUEST ($000)
LMVD	Caney Creek, Jackson, MS	100
	Dardenne Creek, MO	170
	Jackson Metropolitan Area, MS	250
	Mermentau River, GIWW to the Gulf, LA	100
	Plattin Creek, MO	155
	Southeast Arkansas Study, AR (MR&T)	75
MRD	Boxelder, Spring, & Dry Creeks, Ft Collins, CO	70
	Goose Creek, Boulder, CO	70
NAD	Anacostia River & Tributaries, MD & DC	200
NCD	Crookston, MN	290
	Illinois Waterway Navigation, IL	1,100
	Milwaukee Metropolitan Area, WI	200
	St. Joseph Harbor, MI	180
NPD	Columbia River Channel Deepening Study, OR & WA	100
	Johnson Creek, OR	140
	Lower Snohomish River, WA	100
	Seward, AK	125
	Tri-Cities Levees, WA	225
ORD	Licking River, KY	100
	Monogahela River Basin, MD, PA, & WV	50
	Wabash River Basin Comprehensive Study, IN & IL (Mid Wabash Region)	100
POD	Urban Flood Control - Honolulu, HI	200
SAD	Glynn County Beaches, GA	400
	Lower Hillsborough River and Curiosity Creek, FL	80
	Palm Valley Bridge, FL	200

DIVISION	STUDY NAME	FY 1991 REQUEST ($000)
SAD (cont)	Savannah Harbor Extension, GA	150
	South Carolina Shores, SC	300
	Tampa Harbor, Alafia River and Big Bend, FL	100
SPD	Gila River Indian Community, AZ	200
	Las Vaegas Wash & Tr., Duck Ck & Blue Diamond	200
	Monterey Harbor, CA	210
	Northern California Stream, Yolo Bypass, CA	400
	San Francisco County, Ocean Beach, CA.	336
	San Joaquin River Basin, Mokelumne River & Tribes, CA	300
	Tucson Drainage Area, AZ	250
	Weber River and Tributaries, UT	300
SWD	Albuquerque Arroyos, NM	140
	Las Cruces, NM, El Paso and Vicinity	130
	Matagorda County Shore, TX	80
	Port Lavaca to Red Bluff, TX	77
	San Bernard River Watershed, TX	150

WETLANDS

Mr. BEVILL. President Bush has endorsed a policy of "no net loss" of wetlands. Can you tell the Committee what "no net loss" means?

Mr. PAGE. The President has established a wetlands task force within the Domestic Policy Council to develop policy to achieve the goal of no net loss of wetlands. The term "no net loss" is derived from the goal set forth in a report by the National Wetlands Policy Forum, "Protecting America's Wetlands: An Action Agenda." The report specifically recommends that:

> "the Nation establish a national wetlands protection policy to achieve no overall net loss of the Nation's remaining wetlands base as defined by acreage and function, and to restore and create wetlands, where feasible, to increase the quality and quantity of the Nation's wetlands resources base.
>
> Interim goal:
>
> To achieve no overall net loss of the Nation's remaining wetlands base.
>
> Long-term goal:
>
> To increase the quantity and quality of the Nation's resource base.
>
> Although calling for a stable and eventually increasing inventory of wetlands, the goal does not imply that individual wetlands will in every instance be untouchable or that the no-net-loss standard should be applied on an individual permit basis -- only that the Nation's wetlands base reach equilibrium between losses and gains in the short run and increase in the long term. The public must share with the private sector the costs of restoring and creating wetlands to achieve this goal."

While the President has endorsed this goal, it will be the work of the Task Force to define "no net loss" and to develop a plan to measure and monitor achievement toward this goal.

MOA WITH EPA

Mr. BEVILL. Is the MOA you signed with EPA last November the document that will implement the President's policy?

Mr. PAGE. The MOA is not, in itself, a no net loss policy. Neither the Section 404 program in general, nor the MOA in particular, is designed to achieve the national goal of no overall net loss of wetlands. EPA and the Corps will strive to achieve the President's goal of no net loss; however, the MOA clearly recognizes that mitigation which is not appropriate or practicable will not be required, nor will each permit be required to achieve no net loss of wetlands.

Mr. BEVILL. What is the status of the MOA?

Mr. PAGE. The MOA was implemented on February 7, 1990.

Mr. BEVILL. Was the public given the opportunity to comment on the procedures described in the MOA?

Mr. PAGE. No. The MOA interprets and clarifies existing Section 404 regulations and, therefore, qualifies as an interpretive rule and general statement of policy which is exempt from the Administrative Procedure Act (APA) rulemaking. Under Section 553(b) of the APA, specific types of agency actions are exempted from notice and comment requirements. These exemptions cover interpretive rules, general statements of policy, or rules of agency organization, procedure and practice.

WETLANDS

Mr. BEVILL. General Hatch, during the FY 1989 hearings, you stated that the Corps did not consider the Section 404 program to be wetlands protection legislation. Is that still the case in light of the "no net loss" policy?

General HATCH. The Corps Regulatory Program has shifted during the past several years under my command to reflect more closely the plain language of the Clean Water Act. Section 101(a) of this Act declares: "The objective of the Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Wetlands are, of course, a subset of the Nation's water. Clearly, within the limits and context of the Clean Water Act and our other authorizations, the Corps considers the Section 404 program to be a wetlands protection program. The Corps expressly recognizes that achieving no net loss of wetlands values and functions is not possible in every permit action.

As you know, the Administration formed a wetlands task force last summer to come up with a national policy on wetlands. No net loss of wetlands is referred to in the recently signed Mitigation Memorandum of Agreement (MOA) between the Department of the Army and the Environmental Protection Agency. The MOA clarifies the procedures to be used in determining the type and level of mitigation necessary to demonstrate compliance with the Section 404(b)(1) Guidelines. It is important to emphasize that, while the MOA's implementation can contribute to a goal of no overall net loss of wetlands, the MOA does not establish a no net loss policy. The MOA is consistent with the President's goal of no overall net loss of wetlands. It affirms the Corps existing policy of striving to avoid adverse impacts and to offset unavoidable impacts to aquatic resources, which include wetlands.

MOA
ARMY AND EPA

Mr. BEVILL. How are the procedures described in the MOA different from current Corps procedures for analyzing permit applications and determining mitigation requirements?

General HATCH. The MOA is a clarification of existing regulations and is intended to provide guidance to Corps and EPA field offices on the Section 404(b)(1) Guidelines mitigation requirements. The MOA does not contain requirements beyond those currently allowed for in regulation or establish new bases for denying Section 404 permits. We anticipate that some Corps districts may have to make some changes in the way the regulations are interpreted, for example, in the area of impact avoidance as related to selecting the least damaging practicable alternative.

Mr. BEVILL. Will the Corps regulations that implement the Section 404 program need to be revised to carry out the policy?

General HATCH. No.

WETLANDS

Mr. BEVILL. Do you believe that the "no net loss" policy is consistent with the intent of legislation that created the Section 404 program?

General HATCH. The Corps believes that the goal of "no net loss" is consistent with the Section 404 program. The President's poicy is still being developed by the Domestic Policy Council's Wetlands Task Force.

WETLANDS

Mr. BEVILL. In addition to the regulatory program, will the "no net loss" policy also apply to Corps civil works projects?

General HATCH. Yes. The goal for "no net loss of wetlands" applies to our civil works construction program, but its practical application remains to be defined.

Mr. BEVILL. Is it possible that the application of the sequencing procedure described in the MOA to Corps civil works projects will result in situations where the plan recommended for construction is not the NED plan?

General HATCH. Yes. We are reviewing the relationship between the no net loss goal and our planning guidance. The definition of the NED plan recognizes the necessity to be consistent with environmental protection. It is not at all apparent that the two planning models, properly interpreted, would produce different results.

Mr. BEVILL. If such a situation develops, would the local project sponsor be responsible for sharing in any additional costs?

General HATCH. Yes. Our general policy is to apply the Water Resources Development Act cost sharing rules to the recommended plan, regardless of whether or not it is the NED plan.

PROPOSED LEGISLATION

MR. BEVILL. Mr. Secretary, last year in response to a question you stated that the Corps lacked broad authority to make water available to farmers for agricultural use in times of drought and that a legislative proposal submitted to Congress would have remedied the situation. Would you please elaborate on that issue and provide us with the status of that legislation?

MR. PAGE. The recent drought has highlighted the need for legislation to provide sufficient flexibility to address short term water emergencies by allocation of resources within reservoirs managed by the Corps of Engineers. Existing authorities for addressing requests for water, such as the Water Supply Act of 1958 and sections 6 and 8 of the Flood Control Act of 1944, as amended, while useful, do not provide full flexibility to respond to emergency needs for the temporary use of water or storage for water supply purposes in Corps of Engineers reservoirs. I submitted draft legislation to the Congress in 1988 which would authorize the Secretary of the Army to allow the use of water or storage in reservoirs under the jurisdiction of the Secretary to provide for emergency domestic, municipal, industrial, aquacultural, or agricultural water supply, which could mitigate the impacts of drought in distressed areas. That language was never enacted.

The proposed language follows:

BILL LANGUAGE:

SEC. _____. (a) To mitigate a substantial threat, or a likely substantial threat, to the health and welfare of the inhabitants of--including the threat of damage to, or loss of, property in--an area which the Secretary of the Army determines as a result of drought conditions has an inadequate water supply, the Secretary is authorized to allow the use of water or storage in any reservoir under the Secretary's jurisdiction to provide for domestic, municipal, industrial, aquacultural, or agricultural water supply for such temporary period of time and at such prices and under such terms as the Secretary determines appropriate.

(b) Prior to the use of water or storage pursuant to this section, the Secretary of the Army--

(1) shall consult, if Federal hydropower that is marketed by a power marketing administration will be affected, with the Administrator of such power marketing administration; and

(2) shall have received a request for use of such water or storage from the Governor of the drought-affected state where mitigation is to be provided.

(c) If actions by the Secretary of the Army under this section temporarily reduce electric power that otherwise would be generated at a project, the Administrator of the affected power marketing administration is authorized to purchase replacement power to meet contractual commitments.

(d) The amount of the revenues received by the Secretary of the Army from the use of water that was reallocated from Federal hydropower generation pursuant to this section shall be credited, up to the cost of purchasing replacement power, to the annual project operation and maintenance repayment requirements of the affected power marketing administration.

(e) Nothing in this section affects any valid contract between non-Federal interests and the Secretary of the Army, or the Secretary's designated representative.

REPORT LANGUAGE:

This provision provides the Secretary of the Army with broad authority to facilitate emergency action to mitigate the impacts of the drought in distressed areas. Current authorities do not provide full flexibility to respond to emergency needs for the temporary use of water or storage for water supply purposes in Army Corps of Engineers reservoirs.

FY 1990 ACT DIRECTED STUDIES AND PROJECTS

Mr. BEVILL. The FY 1990 Energy and Water Development Appropriations Act, P.L. 101-101, directed the Secretary of the Army to undertake various studies and projects named in the Act. Are those studies and projects proceeding as directed by Congress in the law?

Mr. PAGE. Yes. Where Congress has provided a specific direction in law with respect to a particular study or project, the Department of the Army is proceeding in accordance with that directive.

FY 1990 REPORT DIRECTED STUDIES AND PROJECTS

Mr. BEVILL. The reports accompanying the FY 1990 Energy and Water Development Appropriations Act also directed the Corps of Engineers to undertake various studies and projects. Are those studies and projects proceeding as directed by Congress? Please provide a list of those which are not proceeding.

Mr. PAGE. All studies and projects directed in the reports accompanying the FY 1990 Energy and Water Development Appropriations Act are proceeding in accordance with Committee report guidance, except as noted in the following list:

GENERAL INVESTIGATIONS

Bethel Bank Stabilization, AK
Laconner, WA
Red River Waterway, TX, AR, & OK (Index, AR to Denison Dam, TX)

CONSTRUCTION, GENERAL

Grand Island & Vicinity, LA (Grant to Town of Grand Isle)
Red River below Denison Dam, McKinney Bayou, LA (Dutch John Bottom)

OPERATION AND MAINTENANCE, GENERAL

Mermentau River, LA

FINAL RULES FOR ABILITY TO PAY

Mr. BEVILL. Have the final rules for the ability-to-pay test for flood control projects been issued yet? If so, please provide the Committee with a copy.

Mr. PAGE. Yes.

(The information follows:)

federal register

Monday
October 2, 1989

Part III

Department of Defense

Corps of Engineers, Department of the Army

33 CFR Part 241

Flood Control Cost-Sharing Requirements Under the Ability To Pay Provision; Final Rule

DEPARTMENT OF DEFENSE

Corps of Engineers, Department of the Army

33 CFR Part 241

Flood Control Cost-Sharing Requirements Under the Ability To Pay Provision

AGENCY: U.S. Army Corps of Engineers, DOD.

ACTION: Final rule.

SUMMARY: This document presents the final rule partially implementing section 103(m) of Public Law 99-662, 33 U.S.C. 2213m, which directs the Secretary of the Army to reduce the non-Federal cost-share of flood control and agricultural water supply projects under an "ability to pay" determination. This rule applies only to flood control projects. Guidelines for agricultural water supply projects are to be promulgated in the future.

EFFECTIVE DATE: October 2, 1989.

FOR FURTHER INFORMATION CONTACT: Robert M. Daniel (202) 272-8568.

SUPPLEMENTARY INFORMATION: An interim final rule was published in the Federal Register on September 23, 1987 (52 FR 35875). Comments were solicited prior to publication of the final rule. As a result of the comments received, certain changes have been made. These changes, as well as certain technical clarifications which have arisen as a result of the comments received and application of the rule since September 23, are discussed in the supplementary information.

The basic structure of the interim final rule has been retained. Two tests are applied to each flood control project in order to determine whether a project qualifies for a reduction in the non-Federal cost-share. The benefits test sets an alternative cost-sharing floor whenever one fourth of the benefit-cost ratio, expressed as a percentage, is less than the standard cost-share as defined in the applicable portion of section 103 of Public Law 99-662, 33 U.S.C. 2213. To be eligible for any cost-share reduction that would result from application of the benefits test, a project must also have an Eligibility Factor that exceeds zero. The Eligibility Factor is determined by the income test which compares the income of people in the project area (as measured by the county) and state to the national average. If the county and state per capita income values are low, projects with an alternative non-Federal cost-share established by the benefits test will be eligible for a reduction.

There are three major changes to the interim final rule. First, the income test has been modified by giving less weight to state per capita personal income (PCI) and more weight to the income of the project area (as represented by county PCI). Second, when the income test yields an Eligibility Factor which is greater than zero, we are permitting deferred payments for a portion of the non-Federal share by non-Federal parties regardless of the outcome of the benefits test. Third, when a Native American tribe or village is the local sponsor, the Eligibility Factor is based on income data for the tribe or village only.

Background

There were 11 responses to the interim final rule. Some concentrated on a single point, others brought up a number of concerns. Each point raised by the commenters is addressed in the discussion that follows.

In our previously published discussion of September 23, 1987, on interpretation of section 103(m), we argued that the language was broad and that there was no definite Congressional direction on how the Secretary is to proceed. We concluded that every flood control project should retain at least a five percent non-Federal share. Several commenters disagreed, expressing the view that the Secretary should grant exemptions to non-Federal cost-sharing in the most extreme economic circumstances. In two letters, it was pointed out that Rep. Roe was asked specifically about the projects authorized by section 202 of Public Law 96-367, 94 Stat. 1339. In his response, Rep. Roe stated that "It is the committee's view that improverished areas such as those affected by the Section 202 projects should be exempted from the cost sharing provisions of the bill pursuant to the Secretary's authority." (p. H11567). A third commenter also pointed to Rep. Roe's remarks in supporting the review that exemptions from cost sharing be generally considered. We acknowledged in our previous discussion that Rep. Roe expressed his view that the Secretary should be encouraged to provide new flood control protection at reduced or no non-Federal cost-sharing. We also found evidence of the opposite position, as taken by Sen. Stafford: "It is anticipated that the Secretary will only rarely invoke this authority. And this provision can never be used to eliminate the non-Federal share." (p. S16983).

Both Rep. Roe and Sen. Stafford were quoted in order to show the wide range of opinions that Congress had towards this provision. We continue to believe that we can retain non-Federal cost-sharing requirements for all flood control projects, without damaging the underlying purpose of section 103(m). Furthermore, our policy is constructive in maintaining the integrity of the cost-sharing philosophy which would be damaged by wider divergences in the non-Federal share. We have consistently opposed cost-sharing exemptions and Congress has generally held the same view, making only a small number of exemptions in Pub. L. 99-662 (Barbourville and Harlan KY were the only two section 202 projects exempted). Given this background, we will retain our requirement that at least five percent of the project be a non-Federal share.

The Role of the Local Sponsor

The interim final rule was premised in part on our view that the state should have a responsibility to participate in project financing when a local sponsor's financing options are limited. In the comments received, there was some disagreement on this point. One commenter saw no role for state government: "until Congressional intent is clearly established, the COE should follow existing Federal policy on this issue, i.e., Federal responsibility remains with the involved federal agency for water project costs over and above the local sponsor's contribution." Others stressed the importance of the local sponsor below the state level in planning and financing decisions citing political, legal, and other institutional constraints which limit state participation. The opposite extreme was also expressed, "if the Corps insists that '* * *' states have a responsibility in cases where the local sponsor seems incapable of providing the non-Federal share.', then perhaps it is incumbent upon only the states to contract for these projects."

We do not want to exclude consideration of state resources as a source of financing. There is no basis for the assertion that state participation is against Federal policy. This is abundantly clear from the various arrangements states have made for providing state support for such projects. In some cases, when state constraints present a problem, we believe it is incumbent on state and local Governments to address these problems directly, rather than seek additional Federal support. At the same time, we do not feel it is appropriate to insist that states be solely responsible, or attempt to define with any precision, the degree to state involvement in individual cases. In many cases that

state and local governments have preferred to use the smaller jurisdiction as the source of financing.

Our formula therefore continues to include state income as a factor in the analysis. In response to the concerns expressed in the comments, we have however, changed the weights given to state and local incomes so that the local income is now given twice the weight of the state.

The Use of Project Benefits in Developing a Cost-Share Alternative

We argued previously that "local sponsors and their states have two sources of economic resources that can be used to pay for the non-Federal share of the project. First, existing resources as reflected in traditional measures of income and/or wealth, may be sufficient. Second the project itself will generate benefits.

Many of the benefits to flood control projects are either due to flood damage reduction or to income enhancement to households and businesses located in the project area. These benefits represent an important source of income and wealth that will be available for project funding no matter how poor the project area is before implementation."

Several commenters disagreed with our use of project benefits to define the limits of cost-share reductions. They expressed the view that benefits do not represent the "real dollars" needed for project financing and that the "approach favors projects with less merit and discriminates against those projects that provide the greater *National* benefits." We remain convinced that the resources saved (i.e. the National benefits) by a flood control project can legitimately be used in an ability to pay evaluation and that this will not in any way favor low benefit projects over those with high benefits. The Federal policy, which gives the highest priority to projects with a high benefit/cost ratio, will be unaffected. Communities will still prefer projects with high benefit/cost ratios, because the extra benefits received will be greater than the additonal non-federal costs that might be incurred after application of the ability to pay rule.

We will therefore, continue to use project benefits to determine the alternative level of cost-sharing under the ability to pay test. This alternative level establishes a benefits based floor (BBF) below which the non-Federal cost-share will not be reduced. When projects are fully eligible based on the income test describe below, the reduction in the non-Federal share will be such as to set the share equal to one fourth of the project's benefit/cost ratio, when this ratio is expressed as a percentage. For example, if a project has a benefit/cost ratio of 1.2, share reductions cannot bring the share below one fourth of this, or 30 percent of project first costs. In this example, if the "standard" level of cost-sharing, i.e. the amount required by section 103(a) or 103(b), 33 U.S.C. 2213, a and b, is less than 30 percent, there will be no reduction under the ability to pay provision.

We are, however, modifying our interim rule by allowing that for projects with an Eligibility Factor greater than zero, a portion of the non-Federal share may be deferred even if the BBF exceeds the standard non-Federal cost-share. We require for structural projects, that the local sponsor provide during construction, cash payments equal to five percent of total project costs, and to contribute lands, easements, rights of way, relocations, and dredged material disposal areas (LERRD) paid for or acquired by the local sponsor prior to signing a cost-sharing agreement. The remaining non-Federal share, either for LERRD or for cash requirements in excess of 5 percent of project costs, can be deferred. For non-structural projects, we require during construction LERRD paid for or acquired by the local sponsor prior to the agreement with the remainder eligible for deferment. By permitting deferred payments when the Eligibility Factor exceeds zero, we are more closely matching the non-Federal payment requirement to the benefits stream for projects in low income areas. In those areas with the greatest possible cost-share reductions (Eligibility Factor equals or exceeds one), payments during construction and repayments of deferred amounts need be no greater than one fourth of project benefits. We do not believe this represents a hardship

As in the interim rule, any reductions in non-Federal shares under the ability to pay provision will apply to first costs only. For administrative simplicity, we will use one fourth of the benefit-cost ratio as an alternative share, even though the costs in this calculation include O&M costs. This ratio will be calculated based on the discount rate which the Corps is using to evaluate projects at the time the local cooperation agreement (LCA) is signed. For LCA's signed in 1989 for example, an 8.875 percent discount rate would be used.

The Use of Per Capita Personal Income To Determine Project Eligibility

The final rule continues to determine project eligibility for reductions in the non-Federal share by using the per capita personal income of the project area (using county income as the surrogate for project area income) and the state in which the project is located. In developing the interim final and final rule, two of our guiding principles have been: (a) That the rule should not be any more complex than is necessary; and (b) that it should be based on easily accessible, publicly available data. We concluded that a standard measure of income would be the appropriate statistic to use. Several comments were directed towards our approach.

One observation was made that since local or county government taxes are structure-based rather than income-based, household income, rather than per capita personal income would be a better measure to use. There are three sources of income data available from the Federal Government which might be used to measure the underlying resource base of political subdivisions below the state level. First is per capita personal income (PCI), published yearly for each county, by the Bureau of Economic Analysis (BEA). Second is per capita money income available biannually for counties and incorporated (sub-county) places, published by the Bureau of the Census. Third is median family income (MFI), available yearly for each county, from data published by the Department of Housing and Urban Development (HUD). The HUD estimates are more up to date (HUD currently has estimates for 1988, while the BEA data are currently available only through 1986), but are based in part on projections of previous years' data using other economic factors as the basis of the projections.

We continue to feel that data should be available on a yearly basis and that a three-year average should be used in the calculation of the Eligibility Factor. This limits our choice to per capita personal income and median family income. There are a number of reasons for differences in the measures of PCI and MFI. Perhaps the most significant is that PCI is a measure of the mean, while MFI is a measure of the median. This is relevant to our choice of income variable. The revenue potential from a structure-based tax is more closely related to the total value of the structures (and therefore to the mean) than to the median value. It allows that if income is being used as a proxy for wealth to measure a local government's revenue potential, the mean is a more appropriate measure than the median, even if a local government raises revenues by using a structured-based tax. Thus we have decided to stay with PCI in our eligibility formula.

Two commenters pointed out that the local sponsor may be an entity which is

smaller than the county level, so that county income does not necessarily represent the income of the residents under the sponsor's jurisdiction. As pointed out above, this information is not available on a yearly basis. Even if it were available, we do not feel it necessary or desirable to match the income estimate precisely to the project sponsor's jurisdiction, since sponsors vary from project to project.

One disagreed with our "formula approach", stating that it would be preferable to have the Secretary apply judgment to each project rather than rely on a "simplistic and unsophisticated formula". We believe that a formula approach is far preferable to a case by case analysis. It is important that any rule be capable of being applied consistently and objectively throughout the nation. This requires that specific factors be identified and that the consequences of these factors be the same in all ability to pay tests. By keeping the formula relatively simple, there is a possibility that a subtle aspect of a single project may be missed. At the same time, we have proposed an approach which can be easily understood and fairly applied. This advantage far outweighs the disadvantages.

One commenter argued that since native American tribes and villages have special relationships with the Federal Government, the use of county and state PCI figures is inappropriate for projects sponsored by these groups. We are persuaded that such projects do warrant different consideration. Indian, Eskimo, and Aleut tribes and villages do not receive support from state and local governments. Unfortunately, current income data for reservations, tribes, and villages are very limited. The most recent comprehensive information is from the Bureau of Census, 1980 Census, which reports median family income, by reservation, for 1979 in *American Indians, Eskimos and Aleuts on Identified Reservations and in Historic Areas of Oklahoma (Excluding Urbanized Areas)*, Part 1, Table 10; and per capita money income for 1979 in *General Social and Economic Characteristics-United States Summary (1980)*, Table 252. The data are for Native Americans living on reservations or in villages and are not strictly comparable to the income of all Tribal members, or for all Native Americans living on or near a reservation or village. Our revised procedures require the use of publicly available data such as that appearing in the Census publications identified here and a comparison of data for the relevant Indian, Eskimo, or Aleut group to the national average of the same concept of income and for the same year. For example, using the data cited above, the median family income for the reservation would be compared to 1979 median family income for the United States. We will require the use of the most recently available data, which in any case must be no earlier year than the 1979 data cited above. If later or more accurate information is available, it may be used as a substitute provided that the substitute data is comparable to an equivalent national average which is publicly available. These projects will, of course, also be subject to the benefits test.

We have maintained our decision from the Interim Final Rule, that all U.S. Territories will be eligible for the full amount of cost-share reduction derived from the benefits test. Unpublished data from the Bureau of Economic Analysis indicates that in 1985, per capita personal income in the territories ranged from 66 percent of the U.S. average (Guam) to 25 percent of the U.S. average (American Samoa).

We will continue to exclude unemployment and the sponsor's borrowing capability in our Eligibility Factor formula. While no one advocated that unemployment be used, several comments addressed our decision to exclude borrowing capability. One commenter for example, pointed out that the legal constraints against borrowing vary from state to state and should therefore be a factor in our ability to pay analysis. Consideration of these constraints would result in unequal treatment on a national scale and in our judgment, would be inappropriate. In addition, per capita income itself represents a rough measure of fiscal capacity which can be applied without regard to past spending and taxing decisions, or legal or other institutional constraints. Our final rule implicitly recognizes a potential limit to borrowing capacity for "low income projects". When the Eligibility Factor, described below, exceeds zero we will allow payments over time rather than during construction, for a portion of the non-Federal share. As pointed out above, this repayment provision applies whenever the income of the project area and state is low, regardless of the outcome of the benefits test.

The Eligibility Formula

The eligibility factor (EF) is determined by:

$$EF = a - b_1 \times (\text{State PCI Index}) - b_2 \times (\text{County PCI Index})$$

where a, b_1, and b_2 are positive constants. The county and state PCI indices are a measure of the local PCI relative to the national average. If per capita income in a state equals the national average, the state's index number would be 100. If a project includes beneficiaries in more than one county, the county PCI index will be a combined PCI index, where each county PCI index is weighted by the share of project benefits which can be located geographically. Similarly, when project beneficiaries are located in more than one state, the state index will be determined using weights determined by the states' shares of project benefits.

If EF is less than zero, the project is not eligible for cost-share reductions under the ability to pay test. If EF is greater than or equal to one, the project is eligible for full application of the benefits based cost-share alternative described above. For EF less than one but greater than zero, the value represents the degree of application for which the project is eligible. For example if the standard cost-share is 50 percent and the minimum cost-share under the ability to pay formula is 30 percent and EF = .8, the non-Federal cost-share reduction will be the fractional amount 0.8 or 80 percent of the difference between 50 percent and 30 percent. The cost-share in this example would be 38 percent $(50 - .06 \times (50-30) = 38.0)$.

In the interim final rule, we gave equal weights to state and county PCI, that is b_1 and b_2 were set equal to each other. As discussed above (the role of the local sponsor), we have reevaluated the weights and concluded that the county index factor should be set at twice the state factor. The values for a, b_1 and b_2 will be published in Engineering Circulars. The formula will reflect our view that the ability to pay provision should only apply in exceptional circumstances. Therefore, two thirds of the counties will not be eligible; 20 percent of the counties will be eligible for the full application; and the remaining 13⅓ percent will be eligible for a partial application.

Available county PCI data lag behind available state PCI data. County information currently exists through 1987, state information through 1988. The guidelines require the use of the three latest years even if these years are different for counties and states. We believe that this represents the most up to date economic profile of a project area which can be applied uniformly to all projects.

Other Issues

We have retained the five percent minimum cash requirement of section

103(a)(1)(A), 33 U.S.C. 2213(a)(1)(A), even for projects where the ability to pay test leads to a reduction in the non-Federal cost-share. This requirement is intended to demonstrate that the non-Federal interest has a serious commitment to the project. It is identical to the cash requirement in the interim final rule. One commenter found no basis for a cash requirement in section 103(a)(1)(A) (although the comments included recognition that section 104(g), 33 U.S.C. 2214, refers to the 103(a)(1)(A) requirement as a cash requirement. We believe that this reference, plus the language in the Conference Report for Public Law 99-662 (p. 206) shows clearly that a 5 percent cash payment is required under standard cost-sharing of structural flood control projects. By keeping the 5 percent cash requirement under the ability to pay provision, it may be necessary to negotiate cash repayments to the local sponsor at the end of the project, or to make Federal payments for Lands, Easements, Rights of Way, Relocations, and Dredge Material Disposal Areas (LERRD) that are, under standard cost-sharing, the responsibility of the non-Federal interest.

Two commenters observed that the Ability to Pay Interim Final Rule did not address the relationship between credits given under section 104 and cost-share reductions under 103(m). In cases where a project is eligible for both credits and a cost-share reduction, the ability to pay calculation should be made first. Credits would then be applied against the non-Federal share as adjusted. The application of credits is subject to a separate regulation, ER 1165-2-29, published in the Federal Register, Nov. 18, 1987 (33 CFR 240).

The remaining comments (and our response) are listed here:

Comment: The ecological design of a project can reduce economic benefits, which becomes a liability under the ability to pay guidelines.

Response: When economic benefits are reduced, the project's benefit-cost ratio is reduced, increasing the likelihood that there will be a reduction under the ability to pay test.

Comment: The Secretary does not have the legal authority to reduce the non-Federal share under section 103(m).

Response: In our judgment, the record shows that this authority has in fact been given to the Secretary.

Comment: It is not clear how the rule is to be applied when the state, rather than a smaller entity, is the non-Federal sponsor.

Response: The rule is applied to all projects in exactly the same way regardless of the nature of the local sponsor.

Comment: The rule should include a chart showing how the ability to pay tests would affect projects with various characteristics.

Response: This suggestion was made by an advocate of a simpler formula. Given the number of factors in the final rule, a chart may cause imprecision in the application of the rule which our formula avoids.

Three other points have arisen during application of the interim rule which require clarification. First, some projects have been authorized without calculation of the economic benefit-cost ratio as defined in the Water Resource Council's Principles and Guidelines. In these cases, such a calculation must be made before the ability to pay test can be applied. Second, when determining the alternative cost share, it should be calculated to the nearest 1/10 of one percent. Finally, the test must be applied to projects constructed under section 208 of the 1954 Flood Control Act, 33 U.S.C. 701g (as amended), as well as the projects constructed under the other continuing authority programs identified in the interim final rule.

E.O. 12291 and Regulatory Flexibility Act

This rule is not a major rule within the meaning of Executive Order 12291, because it is not likely to result in: (1) An annual effect on the economy of $100 million or more; (2) a major increase in costs or prices for consumers, individual industries, Federal, State, or local government agencies, or geographic regions; or (3) significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States based enterprises to compete with foreign based enterprises in domestic or export markets.

Pursuant to 5 U.S.C. section 605(b) I hereby certify that this rule will not have a significant economic impact on a substantial number of small entities. Furthermore, it imposes few, if any, administrative burdens of any sort on small entities. Furthermore, the number of entities affected by this rule is small.

List of Subjects in 33 CFR Part 241

Community facilities, Flood control, Intergovernmental relations, Water resources.

Kenneth L. Denton,

Alternate Army Liaison Officer, with the Federal Register.

The Corps of Engineers is hereby issuing final rules revising part 241 in title 33, chapter II as follows:

PART 241 FLOOD CONTROL COST-SHARING REQUIREMENTS UNDER THE ABILITY TO PAY PROVISION

Sec.

241.1 Purpose.
241.2 Applicability.
241.3 References.
241.4 General policy.
241.5 Procedures for estimating the alternative cost-share.
241.6 Deferred payments for certain qualifying projects.
241.7 Application of test.

Authority: Sec. 103(m), Water Resources Development Act of 1986 Pub. L. 99-662, 100 Stat. 4082, 33 U.S.C. 2201 *et seq.*

§ 241.1 Purpose.

This regulation gives general instructions on the implementation of section 103(m) of Public Law 99-662, 33 U.S.C. 2213, as it applies to flood control projects.

§ 241.2 Applicability.

This regulation applies to all U.S. Army Corps of Engineers Headquarters (HQUSACE) elements and field operating activities (FOA's) of the Corps of Engineers having Civil Works responsibilities.

§ 241.3 References.

(a) Water Resources Development Act, 1986, Public Law 99-662, 100 Stat. 4082, 33 U.S.C. 2201 *et seq.*

(b) U.S. Water Resources Council, *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, March 10, 1983.

(c) Office of Personnel Management, *FPM Bulletin* 591-30.

(d) Office of Personnel Management, *FPM Bulletin* 591-32

(e) U.S. Army Corps of Engineers, *Engineer Regulation* 1165-2-29.

§ 241.4 General policy.

(a) Procedures described herein establish an "ability to pay" test which will be applied to all flood control projects. As a result of the application of the test, some projects will be cost-shared by the non-Federal interest at a lower level than the standard non-Federal share that would be required under the provisions of section 103 of Public Law 99-662, 33 U.S.C. 2213. The "standard share", as used herein, refers to the non-Federal share that would apply to the project before any ability to pay consideration.

(b) Section 103(m) requires that all cost-sharing agreements for flood control covered by the terms of section 103(a) or 103(b) be subject to the ability to pay test. The test must therefore be applied not only to projects specifically

horized by Congress, but to the tinuing authority projects constructed under Section 14 of the 1946 Flood Control Act (33 U.S.C. 701r), section 205 of the 1948 Flood Control Act (33 U.S.C. 701s), and section 208 of the 1954 Flood Control Act (33 U.S.C. 701g), all as amended.

(c) The ability to pay test shall be conducted independently of any analysis of a project sponsor's ability to finance its ultimate share of proposed project costs. The ability to finance is addressed in a statement of financial capability which considers current borrowing constraints, alternative sources of liquidity, etc. It is therefore much more narrowly defined than the ability to pay test, which considers the underlying resource base of the community as a whole. The ability to pay test shall not be used to affect project scope, or to change budgetary priorities among projects competing for scarce Federal funds.

(d) Any reductions in the level of non-Federal cost-sharing as a result of the application of this test will be applied to construction costs only. Operations, maintenance and rehabilitation responsibilities are unaffected by the ability to pay test.

(e) When projects are eligible for fits as outlined in ER 1165-2-29, erence § 241.3(e), the ability to pay test will be applied before any adjustments are made for credits. If the ability to pay test results in a lower non-Federal share, the allowable amount of credits will be limited by the lower share.

(f) The test is based on the following principles:

(1) Since the standard non-Federal cost-share is substantially less than full costs in every case, the ability to pay test should be structured so that reductions in the level of cost-sharing will be granted in only a limited number of cases of severe economic hardship.

(2) The test should depend not only on the economic circumstances within a project area, but also on the conditions of the state(s) in which the project area is located. Although states' policies with respect to supporting local interests on flood control projects are not uniform, the state represents a potential source of financial assistance which should be considered in the analysis.

(3) The alternative level of cost-sharing determined under the ability to pay principle should be governed in part by project benefits. If, as a result of the oject, local beneficiaries receive more ome, or are required to use fewer sources on flood damage repair or replacement, or on flood insurance, a portion of these resources should be available to pay for the non-Federal share, even in those cases where an analysis of current economic conditions indicates that there are relatively limited resources in the project area and its state.

(4) Since project benefits represent availability of resources in the future, but not the present, project sponsors should be permitted to defer a certain percentage of the non-Federal share whenever current economic circumstances suggest that non-Federal resources may be limited.

(g) The Non-Federal interest may, at its discretion, waive the application of the ability to pay test. In this case, the Non-Federal interest shall be considered to have the ability to pay the standard cost-share and no further economic inquiry will be required.

§ 241.5 Procedures for estimating the alternative cost-share.

(a) *Step one, the benefits test.* Determine the maximum possible reduction in the level of non-Federal cost-sharing for any project.

(1) Calculate the ratio of flood control benefits (developed using the Water Resources Council's *Principles and Guidelines*—ref. § 241.3(b)) to flood control costs for the project based on the discount rate which the Corps is currently using to evaluate projects. Costs include operations and maintenance as well as first costs. Divide the result by four. For example, if the project's (or separable element's) benefit-cost ratio is 1.2:1, the factor for this project equals 0.3. If a project has been authorized for construction without a benefit-cost ratio calculated in accordance with the Principles and Guidelines, determination of the ratio is a prerequisite for consideration under the ability to pay provision.

(2) If the factor determined in § 241.5(a)(1), when expressed as a percentage, is greater than the standard level of cost-sharing, the standard level will apply.

(3) If the factor determined in § 241.5(a)(1), when expressed as a percentage, is less than the standard level of cost-sharing, projects may be eligible for either a reduction in the non-Federal share to this "benefits based floor" (BBF), or for a partial reduction to a share between the standard level and the BBF, as determined by the procedures in step two, § 240.5. In no case however, will the non-Federal cost-share be less than five percent.

(b) *Step two, the income test.* Projects may qualify for the full amount of the reduction in cost-sharing calculated in Step one, or for some fraction of the reduction in cost-sharing, depending on a measure of the current economic resources of the project area and of the state or states in which the project is located.

(1) To assure consistency, the calculations in § 241.5(b) (2) and (3) will be performed by HQUSACE and distributed to all FOA's via Engineering Circulars. The information will be updated and distributed to HQUSACE and to the field as soon as new data are available. The procedures may be verified for any single county or state using the sources cited.

(2) For each of the three latest calendar years for which information is available, determine the level of per capita personal income in the state in which the project beneficiaries are located, and compare this to the national average of per capita personal income. Source: Dept. of Commerce, Bureau of Economic Analysis, as published yearly in the April *Survey of Current Business*. (If the project beneficiaries are located in Alaska or Hawaii, divide the per capita personal income figure by one plus the percentage used in the Federal Government's cost of living pay differential for Federal workers who purchase local retail and who use private housing, employed in Anchorage, AK or Oahu, HI as contained in References §§ 241.3(c) and 241.3(d).) Determine the state's per capita personal income as an index number in comparision to the national average (U.S. = 100), and calculate the three year average of the state's index number.

(3) For each of the three latest calendar years for which information is available, determine the level of per capita personal income in the county where the project beneficiaries are located (the "project area"), and compare this to the national average of per capita personal income. Source: Dept. of Commerce, Bureau of Economic Analysis, as published yearly in the April *Survey of Current Business*. (If the project beneficiaries are located in Alaska or Hawaii, divide the county's per capita personal income figure by one plus the percentage used in the Federal Government's cost of living pay differential for Federal workers who purchase local retail and who use private housing, employed in Anchorage, AK or Oahu, HI.) Calculate the index for the county's per capita personal income to the national average (U.S. = 100), and calculate the three year average of the county's index number.

(4) When the project area, as determined by the location of the project's beneficiaries, includes more

than one county, calculate a composite project area index by taking a weighted average of the county index numbers, the weights being equal to the relative levels of benefits received in each county. When the project area includes more than one state, the state index for the project should be calculated using the same weighting technique.

(5) Calculate an "Eligibility Factor" for the project according to the following formula:

$EF = a - b_s \times (\text{state factor}) - b_a \times (\text{area factor})$.

If EF is one or more, the project is eligible for the full reduction in cost-share to the benefits based floor. If EF is zero or less, the project is not eligible for a reduction. If EF is between zero and one, the non-Federal cost-share will be reduced proportionately to an amount which is greater than the BBF but less than the standard non-Federal cost-share in accordance with the procedures described in paragraph § 241.5(c) below. The values of a, b_s and b_a will be determined by HQUSACE. The parameter values will be based on the latest available data and set so that 20 percent of counties have an EF of 1.0 or more, while 66.7 percent have an EF of 0 or less. These values will be adjusted periodically as new information becomes available. Changes will be published in Engineering Circulars. The values will be set so that $b_a = 2 \times b_s$, giving local income twice the weight of state income.

(6) Since estimates (available from the Bureau of Economic Analysis) of per capita personal income for Puerto Rico, Guam and other U.S. territories are well below the national average, the eligibility factor for projects in these areas is administratively established to be equal to 1.

(7) For flood control projects sponsored by Native American tribes or villages, the EF shall be calculated using information on tribe or village income as a replacement factor for both the area and state factor (that is multiply the replacement income factor by both b_s and b_a and subtract each from a in the equation in § 241.5(b)(5)). The replacement factor will be tribe or village income as a percentage of the national average for the equivalent definition of income (for example a Tribe's median family income as a percentage of the median family income for all U.S. families). The data should be the latest available information. It is acceptable, but not required that the data be obtained from the Bureau of the Census, *American Indians, Eskimos and Aleuts on Identified Reservations and in Historic Areas of Oklahoma (Excluding Urbanized Areas)*, part 1, Table 10, or *General Social and Economic Characteristics—United States Summary (1980)*, Table 232. Since both sources contain information for Native Americans living on reservations, rather than all Tribe or Village members, the sources should be used only when appropriate, or when no better information is available.

(c) *Application of the Ability to Pay Formula to the Basic Cost-sharing Provisions of Section 103.* If a flood control project has a BBF which is less than the standard cost-share and an EF which is greater than zero, the non-Federal cost-share will be reduced. The alternative non-Federal share will be calculated and reported to the nearest one tenth of one percent. The actual reduction is determined by applying the ability to pay formula to the basic flood control cost-sharing provisions of section 103 of Public Law 99-662, 33 U.S.C. 2213, as follows:

(1) When EF > 1, non-Federal cost-share = BBF

(2) For structural projects covered by section 103(a), when $0 < EF < 1$:

(i) If LERRD equals or exceeds 45 percent:
non-Federal cost-share = 50 − EF × (50 − BBF)

(ii) If LERRD exceeds 20 percent but is less than 45 percent:
non-Federal cost-share = (LERRD + 5) − ER × [(LERRD + 5) − BBF]

(iii) If LERRD is less than 20 percent:
non-Federal cost-share = 25 − EF × (25 − BBF)

(3) For non-structural projects covered by section 103(b), when $0 < EF < 1$:
non-Federal cost-share = 25 − EF × (25 − BBF)

(4) In no case however, can the non-Federal share be less than five percent, even if the calculation made in § 241.5(c) (1), (2), or (3) results in a smaller number.

(5) Note: LERRD equals the costs of lands, easements, rights-of-way, relocations, and dredged material disposal areas expressed as a percentage of total project costs. The BBF and numerical terms in the equations above are also expressed as percentages.

§ 241.6 Deferred payments for certain qualifying projects.

(a) Whenever a project's Eligibility Factor exceeds zero, the project sponsor will be permitted to defer a portion of its share of flood control costs. The maximum allowable amount deferred equals the total non-Federal share less (for structural projects) five percent of total project costs and less (for all projects) any amounts for LERRD paid for or acquired by the sponsor prior to the time the LCA is signed. If for example, the non-Federal share of a structural project = 35.0 percent (after the ability to pay adjustment, if any) of which 10 percent is LERRD already paid for by the local sponsor, the maximum allowable amount to be deferred = 20 percent of project flood control costs (35 less the 5 percent cash requirements, less the 10 percent LERRD already acquired). Deferred payments at the option of the sponsor will be allowed regardless of the outcome of the benefits test described in § 241.5(a) whenever the Eligibility Factor exceeds zero.

(b) When EF > 1, the project sponsor may defer as much as the maximum allowable amount as described in § 241.6(a).

(c) When $0 < EF < 1$, the sponsor may defer a fraction of the maximum allowable amount described in § 241.6(a), where the fraction equals the Eligibility Factor expressed to three decimal places. Continuing the example described in § 241.6(a), if EF = .712, total allowed deferral equals .712 × 20 percent = 14.2 percent of total project costs.

(d) The deferred payment can be made in equal installments over any period of time selected by the non-Federal sponsor, provided that all repayments are made between the end of construction and thirty years thereafter. The amount repaid shall include interest during the repayment period as well as interest for the appropriate portion of the construction period for any amounts deferred prior to the end of construction. The rate of interest shall be determined in accordance with the provisions of section 106 of Public Law 99-662, 33 U.S.C. 2216.

§ 241.7 Application of test.

(a) A preliminary ability to pay test will be applied during the study phase of any proposed project. If the ability to pay cost-share is lower than the standard share, the revised estimated cost-share will be used for budgetary and other planning purposes.

(b) The official application of the ability to pay test will be made at the time the Local Cooperation Agreement (LCA) between the Corps of Engineers and the Non-Federal sponsor is signed. For structural flood control projects, the standard level of cost-sharing will not be known until the end of the project (since the standard level as specified in section 103(a), 33 U.S.C. 2213, includes LERRD). In this case, if the Eligibility Factor is greater than zero but less than one, the ability to pay non-Federal share will be determined using estimated costs.

(c) The LCA for all projects subject to the ability to pay test will include a "whereas" clause indicating the results

of the test. If the project is eligible for a lower non-Federal share:

(1) The revised share will be specified in the LCA (there will be no recalculation of this share once the LCA is signed).

(2) An exhibit attached to the LCA will include the Benefits Based Floor (BBF) determined in § 241.5(a); the Eligibility Factor (EF) determined in § 241.5(b); if the Eligibility Factor is greater than zero but less than one, the estimated standard non-Federal share; and the formula used in determining the ability to pay share as described in paragraphs § 241.5 (c)(1) through (c)(4).

(d) If at the time of project completion, the standard non-Federal share based on actual costs is less than the ability to pay share specified in the LCA, the standard share will apply.

(e) For structural projects. (1) If the standard LERRD plus cash requirement exceeds the ability to pay cost-share, the Federal Government will make any necessary adjustments in expenditures in the following order: First, paying any cash requirement in excess of five percent of total project costs (if any) that would, under standard cost-sharing, have been the responsibility of the non-Federal sponsor; second, making payments for LERRD; and third, providing for reimbursement at the end of construction. Federal payments for LERRD will be made only after the non-Federal payment for LERRD reaches a percentage of total project costs equal to the ability to pay non-Federal cost-share less the five percent cash requirement. If such arrangements are necessary, the LCA should be prepared to reflect agreement on the best manner available for acquisition of those LERRD over the limiting percentage, or for reimbursing the sponsor upon completion of construction.

(2) The non-Federal sponsor will be required to provide a cash payment equal to a minimum of five percent of estimated total project costs, regardless of the outcome of the ability to pay test. The project sponsor shall make cash payments during construction at a rate such that the amount of non-Federal payments in each year, as a percentage of total non-Federal cash payments, equals the amount of Federal expenditures (including sunk pre-construction engineering and design costs as a first year Federal construction expenditure) as a percentage of total Federal expenditures. Total Federal expenditures include cash payments for construction and if necessary (due to ability to pay considerations), for LERRD, and for reimbursement to the non-Federal sponsor. Total Federal expenditures for the purpose of this calculation, do not include expenditures which allow the non-Federal sponsor to defer payment of the non-Federal share under the provisions of this rule.

(f) For non-structural projects, reductions in the non-Federal cost-share as a result of the ability to pay test will not affect the procedures for determining the non-Federal and Federal payment schedules. For non-structural projects, no specific cash payments during construction are required by law.

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PROJECTS RECEIVING ABILITY TO PAY REDUCTIONS IN COST SHARES

Mr. BEVILL. Are all flood control projects reviewed for the local sponsor's ability to pay? Please provide the Committee with a list of projects that have had cost-share reductions and the amount of those reductions as a result of the ability-to-pay test.

Mr. PAGE. Yes, all flood control projects are subject to an ability-to-pay review and local cooperation agreements for these projects contain a clause which indicates whether the sponsor is entitled to a reduction in the cost sharing requirements that otherwise would apply under Public Law 99-662. To date, one project -- the Three Mile Creek project, near Mobile, Alabama -- has benefitted from the ability-to-pay provision. The non-Federal cost share for this project was reduced from 50 percent to 32 percent.

USE OF FY 1989 CPAR FUNDS

Mr. BEVILL. The FY 1990 conference report approved a reprogramming of $2,800,000 in FY 1989 funds to initiate CPAR. How were those funds utilized?

Mr. PAGE. FY 1989 funds in the amount of $2,732,000 were committed to the 17 CPAR projects. The remaining $68,000 was used for in-house administrative costs for the program.

FY 1989 CPAR PROJECTS

Mr. BEVILL. Please provide for the record a brief description of the first group of projects that will be undertaken under CPAR.

Mr. PAGE. The following is a summary of the 17 projects funded in the FY 1989 CPAR Program:

Use of A High-performance Blended-cement System in Concrete Construction: This two-year project will produce improved concrete using Pyrament blended-cement concrete. Partners: U.S. Army Corps of Engineers Waterways Experiment Station and Lone Star Industries, Pyrament Division.
Cost: The Corps and industry partner will each contribute $200,000 per year for two years, for a total of $800,000.

Stabilization of Expansive Clay by Electro-osmosis: This 18-month project will provide a method to avoid expansive soil movements under existing buildings and pavements.
Partners: U.S. Army Corps of Engineers Waterways Experiment Station and Home Owners Warranty Corporation.
Cost: The Corps and industry partner will each contribute $70,000 over three years, for a total of $140,000.

Application of Roller-Compacted Concrete Technology to Roadway Paving: This two-year project will demonstrate the use of roller-compacted concrete for roadway and overlay applications, study its structural performance and provide specifications for its use on pavements subject to high-speed traffic.

Partners: The U.S. Army Corps of Engineers Waterways Experiment Station and Pennsylvania State University, Pennsylvania Department of Transportation, Ben Franklin Technology Center of Central and Northern Pennsylvania, Beaver Valley Builder Supply, Inc., Pennsylvania Power and Light, Forta Corporation, and Mitchell Fibercon, Inc.

Cost: The Corps will contribute $126,000 and the industry partners $255,000, for a total of $381,000.

Develop Computer Software To Determine Interdisciplinary Spatial Conflicts During Facility Design Using Input from Different Sources: The one-year project includes the development of computer software that will detect inter-disciplinary spatial interference problems early in engineering design using 3-dimensional data from different sources.

Partners: U.S. Army Corps of Engineers Waterways Experiment Station and Intergraph Corporation.

Cost: The Corps and industry partner will each contribute $146,500, for a total of $293,000.

Building Assemblies System (BAS): This two-year project will test the Building Assemblies System, a prefabricated, panelized building system.

Partners: U.S. Army Corps of Engineers Construction Engineering Research Laboratory and Kenney-Williams-Williams.

Cost: The Corps and industry partner will each contribute $125,000, for a total of $250,000.

Road Construction In Seasonal Frost Areas: This three-year project will include construction of 40 instrumented road pavement test sections using both Portland cement and asphalt concrete that will be incorporated into a section of interstate highway northwest of Minneapolis, MN.

Partners: U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory and Minnesota Department of Transportation.

Cost: The Corps will contribute $365,000 and the industry partner $4,155,000, for a total of $4,520,000.

Robotically-assisted Masonry Construction: This three-year project will develop robotic devices to assist skilled masons in construction projects.

Partners: U.S. Army Corps of Engineers Construction Engineering Research Laboratory and the International Masonry Institute.

Cost: The Corps will contribute $189,000 and the industry partner $195,000, for a total of $384,000.

Improved Materials and Processes for Sealing and Resealing Joints in Pavements: This three-year project will evaluate various pavement sealants to solve problems associated with hot-applied sealants becoming brittle in cold weather, and the bubbling of hot-applied sealants because of moisture or chemical reaction with the pavement.

Partners: U.S. Army Corps of Engineers Waterways Experiment Station and Crafco, Inc.

Cost: The Corps and industry partner will each contribute $219,000, for a total of $438,200.

Personal Computer-based System for Compliance With Federal Occupational Safety and Health Administration's Hazardous Communications Standard: This one-year project will produce a low-cost personal computer-based software system that would reduce the time and cost for construction contractors to comply with the OSHA Hazardous Communications Standard.

Partners: U.S. Army Corps of Engineers Construction Engineering Research Laboratory and Northeast Louisiana University; Associated Builders and Contractors, Pelican Chapter Training Center; and Associated General Contractors, Louisiana Chapter.

Cost: The Corps and industry partners will each contribute $23,000, for a total of $46,000.

Rapid Method To Determine Freeze-thaw Resistance of Aggregate: This is a two-year project that will determine the freeze-thaw durability of aggregate used in making concrete.

Partners: The U.S. Army Corps of Engineers Cold Regions Research Engineering Laboratory and Michigan Department of Transportation.

Cost: The Corps and industry partner will each contribute $90,000, for a total of $180,000.

Construction of Soil Liners for Landfills, Hazardous Waste Containment and Disposal Sites in Cold Regions: This two-year project will develop improved soil liners and caps, and identify and develop soil-based materials to extend construction seasons for sanitary and hazardous waste landfills in cold regions.

Partners: The U.S. Army Corps of Engineers Cold Regions Research and Engineering Laboratory and Browning-Ferris Industries, CH2M Hill, and Oregon State University.

Cost: The Corps and industry partners will each contribute $230,000, for a total of $460,000.

Computer Software for On-line Process Control of Portland Cement Concrete Production: This two-year project will develop a computer program, Smart Plant, for batch plant control which will reduce the cost of concrete mixtures, minimize the adverse effects of material and mixture variations and increase concrete construction productivity.

Partners: U.S. Army Corps of Engineers Waterways Experiment Station and Shilstone Software Company.

Cost: Corps will contribute $380,000 and the industry partner $758,000, for a total of $1,138,000.

ADDITIONAL FY 1989 CPAR PROJECTS

Development and Use of Corrosion Resistant Modified Sulfur Concrete Structural Components: This 18 month project will develop new designs, techniques, procedures and specifications for using modified sulfur concrete in constructing and repairing heavy load-bearing surfaces such as floors, bridges, roads, runways and other structural components subject to hostile chemical environments.

Partners: The U.S. Army Corps of Engineers Waterways Experiment Station and National Chempruf Concrete, Inc.

Cost: The Corps will contribute $45,000, and the industry partner $55,000, for a total of $100,000.

Asphalt-rubber Concrete Criteria for Mix Design and Applications: This two-year project will evaluate Asphalt-Rubber for widespread use as a binder in concrete.

Partners: U.S. Army Corps of Engineers Waterways Experiment Station and Asphalt Rubber Producers Group; International Surfacing, Inc.; Crafco, Inc.; University of Nevada-Reno and University of Arizona.

Cost: The Corps and industry partners will each contribute $150,000, for a total of $300,000.

Advanced Construction Technology System: This two-year project will expand the Construction Industry Institute's Advanced Construction Technology System beyond its current architectural and structural fields to include new technologies in the electrical, mechanical and civil fields.

Partners: The U.S. Army Corps of Engineers Construction Engineering Research Laboratory and Construction Industry Institute at the University of Texas at Austin.

Cost: The Corps will contribute $75,000 and the industry partner $105,000, for a total for $180,000.

Destruction of Asbestos-containing Waste Materials Using A Plasma Arc Torch: This nine-month project will develop an asbestos destruction procedure that is pollution free and cost effective.

Partners: The U.S. Army Corps of Engineers Construction Engineering Research Laboratory and Georgia Institute of Technology; Georgia Tech Research Institute; Asbestos Abatement Technology, Inc.; and Plasma Energy Corporation.

Cost: The Corps and industry partners will each contribute $35,000, for a total of $70,000.

Development of a Heating, Ventilation, and Air-conditioning Simulation and Balancing Tool: This one-year project will develop a simulation tool which will shorten the time required to design and balance heating, ventilation and air conditioning duct systems.

Partners: U.S. Army Corps of Engineers Construction Engineering Research Laboratory, and Bechtel National, Inc.

Cost: The Corps and industry partner will each contribute $64,000, for a total of $128,000.

STATUS OF FY 1990 CPAR PROGRAM

Mr. BEVILL. What is the status of the FY 1990 CPAR Program?

Mr. PAGE. A request for proposals for the FY 1990 CPAR program was issued on January 12, 1990, by a press release, a notice in the "Federal Register" and direct mailing of the CPAR "Guidelines for Participation" to over 800 organizations and individuals who had previously indicated interested in CPAR. To date, over 100 new requests for the "Guidelines" have been received. The schedule for selecting the FY 1990 projects is as follows:

16 Mar 90	Proposal period ends
30 Apr 90	Laboratories submit recommended proposals to Headquarters, Corps of Engineers.
31 May 90	Decision meeting on FY 1991 projects
14 Jun 90	Authorize start of program

MAKEUP AND PURPOSE OF THE WASHINGTON LEVEL REVIEW CENTER

Mr. BEVILL. Please describe for the Committee the makeup and purpose of the Washington Level Review Center (WLRC).

Mr. PAGE. The WLRC was formed in December 1988 using the existing staff of the Board of Engineers for Rivers and Harbors (BERH), except for four advisors to the board. WLRC has a staff of 31 people comprised of engineers, economists, environmental planners and administrative support personnel. The organization was established to accelerate the Civil Works project development process and add efficiencies while maintaining quality. WLRC coordinates and manages a consolidated concurrent Washington level review of feasibility reports and provides information to assist decisionmakers at the BERH, Corps of Engineers Headquarters, and my office, on behalf of the Army. In addition, WLRC reviews post-authorization change reports, and other decision documents that may be requested.

WLRC REVIEW

Mr. BEVILL. When in the feasibility study review process does review by the WLRC take place?

Mr. PAGE. The WLRC review of a feasibility report takes place at two points. First, a feasibility review conference is held prior to issuance of a district engineer's report. At that time, the WLRC, Headquarters, and my staff ensure that the report will contain sufficient documentation to meet standard planning criteria. After the district engineer issues his/her report and following the issuance of the Division Engineer's public notice, the WLRC review then manages a concurrent review by staffs at the BERH, OCE, and ASA(CW) to ensure that the report has complied with the earlier review and is ready for recommendation/decision by the respective Washington authorities.

FEASIBILITY COST SHARING

Mr. BEVILL. If the Washington Level Review Center (WLRC) determines that a feasibility report needs to be modified, is the local sponsor responsible for sharing in the cost of the modifications?

Mr. PAGE. Yes. The cost sharing agreement specifies that expenses for review support, including report modifications, will be 5 percent of the total study cost or $50,000, whichever is less, and will be cost shared equally. Should the costs exceed these limits, the Feasibility Cost Sharing Agreement will be modified to provide for 50/50 sharing of any additional costs.

Mr. BEVILL. Is the cost of the review by the WLRC chargeable to the feasibility study?

Mr. PAGE. No.

COST AND TIME FOR A TYPICAL WLRC REVIEW

Mr. BEVILL: How much cost and time is involved in a typical review by the WLRC?

Mr. PAGE: WLRC reviewed 103 documents in 1989. Considering all types of reports, the cost of operating the organization is estimated at approximately $18,500 per report. However, the figure would be much higher if only feasibility reports that recommended implementation of a project were considered, since the time spent on review of those documents is greater than the average time for all types of reports. For feasibility reports submitted to WLRC since the organization was established in December 1988 the average time from initiation of report review until when the report was ready for consideration by decisionmakers, was 125 calendar days.

SCOPE OF WLRC REVIEW

Mr. BEVILL. Does the Washington Level Review Center (WLRC) review reports just for technical merit, or are policy matters also included in the review?

Mr. PAGE. Policy matters are also included. The WLRC is responsible for ensuring that the report contains sufficient information and documentation relating to engineering, economic, environmental and policy considerations to allow each organizational level to reach a recommendation on the proper course of action without requiring further information or modification to the report. It is important to note, however, that the WLRC has no decisionmaking authority or responsibility. It simply provides expert support to each of the Washington-level review echelons, i.e., the Board of Engineers for Rivers and Harbors, the Chief of Engineers, and the Secretary of the Army.

FEASIBILITY COST SHARING

Mr. BEVILL. Prior to creation of the WLRC, was the Washington level review of feasibility studies considered a part of the cost-shared feasibility study?

Mr. PAGE. No.

FEASIBILITY COST SHARING

Mr. BEVILL. When does the cost sharing responsibility of a feasibility study end?

Mr PAGE. The cost sharing responsibility ends when the Washington-level concurrent review process ends. Charges incurred only at the district and division levels are cost shared. Charges incurred at the Washington level are not part of study or project costs.

WASHINGTON LEVEL REVIEW

Mr. BEVILL. After review by the Washington Level Review Center, are feasibility studies again reviewed at the Washington level?

Mr. PAGE. Yes. Feasibility studies are separately reviewed by OMB, pursuant to Executive Order 12322.

WLRC REVIEW OF GENERAL DESIGN MEMORANDA

Mr. BEVILL. The Committee has been advised that the Washington Level Review Center (WLRC) also reviews general design memoranda. Does that review include a reanalysis of the benefit-cost data developed during the feasibility study process?

Mr. PAGE. To the extent that the general design memoranda modifies any documentation of analyses relative to the feasibility study which have not previously been reviewed, those modifications are reviewed to ensure proper planning criteria are met, including any economic, engineering, environmental or policy modifications which have occurred subsequent to the feasibility report.

INCREASED COSTS FOR NEW PROCEDURES
COST-SHARED FEASIBILITY STUDIES

Mr. BEVILL. Last year you testified that any increased costs for cost-shared feasibility studies resulting from your new procedures would be expected to be more than offset by savings in preconstruction engineering and design and by savings resulting from acceleration in the project's overall schedule. Do you have any evidence to support that statement?

Mr. PAGE. No, Mr. Chairman, we do not. We are implementing these new procedures, but it would be difficult, at this time, to gather enough statistics to prove the point. It will be a year or two before projects started under the new procedures reach completion of preconstruction engineering and design and several more years before construction of these projects is completed.

FY 1990 NEW STARTS

Mr. BEVILL. Please update the table on pages 232 - 234 of last year's hearings to include new construction starts funded in FY 1990.

Mr. Page. Yes sir. We will provide it for the record.

(The information follows:)

FY 1985 - 1990 NEW START CONSTRUCTION PROJECTS

H-35 DIVISION/PROJECT (1)	FY OF FIRST CONSTRUCTION FUNDS (2)	COST SHARING AGREEMENT REQUIRED (3)	 EXECUTED (4)
NEW ENGLAND			
JONESPORT HARBOR, ME	1985	YES	YES
TOWN BROOK, QUINCY AND BRAINTREE, MA	1987	YES	NO
REVERE BEACH, MA	1987	YES	NO
PORTSMOUTH HARBOR AND PISCATAQUA RIVER, NH & ME	1987	YES	YES
ST. JOHN RIVER BASIN, ME	1988	YES	NO
NORTH ATLANTIC			
ARDSLEY, NY	1985	YES	YES
BALTIMORE HARBOR AND CHANNELS, MD & VA (50 FT DEEPENING)	1985	YES	YES
BARNEGAT INLET, NJ	1985	YES	YES
COWANESQUE LAKE, PA (MODIFICATION)	1985	YES	YES
KILL VAN KULL & NEWARK BAY CHANNEL, NY & NJ	1985	YES	YES
LIBERTY STATE PARK LEVEE AND SEAWALL, NJ	1985	YES	YES
MORICHES INLET, NY	1985	YES	YES
NORFOLK HARBOR AND CHANNELS, VA (55-FT DEEPENING)	1985	YES	YES
RICHMOND, VA	1985	YES	YES
VIRGINIA BEACH STREAMS, CANAL NO. TWO, VA	1985	YES	YES
CAPE MAY INLET TO LOWER TOWNSHIP, NJ	1987	YES	YES
DELAWARE RIVER IN THE VICINITY OF CAMDEN, NJ	1987	YES	YES
FRANCIS E. WALTER DAM, PA (MODIFICATION)	1987	YES	NO
TAMAQUA, PA	1987	YES	NO
TANGIER ISLAND, VA (SHORE PROTECTION)	1988	YES	YES
ATLANTIC COAST OF MARYLAND, MD	1990	YES	NO
GREAT EGG HARBOR INLET & PECK BEACH, NJ	1990	YES	NO
LOCK HAVEN, PA	1990	YES	NO
RAMAPO AND MAHWAH RIVERS, MAHWAH, NJ AND SUFFERN, NY	1990	YES	NO
SHINNECOCK INLET, NY	1990	YES	NO
SOUTH ATLANTIC			
DADE COUNTY, NORTH OF HAULOVER BEACH PARK, FL	1985	YES	YES
GULFPORT HARBOR, MS 1/	1985	YES	NO
MOBILE HARBOR, AL	1985	YES	YES
SAVANNAH HARBOR, GA	1985	YES	YES
TAMPA HARBOR BRANCH CHANNELS, FL	1985	YES	YES
WILLIAM BACON OLIVER LOCK & DAM REPLACEMENT, AL	1985	NO	NO
BLACK WARRIOR AND TOMBIGBEE RIVERS, VICINITY OF JACKSON, AL	1987	YES	NO
CROSS FLORIDA BARGE CANAL, FL (LAND ACQUISITION)	1987	NO	NO
JACKSONVILLE HARBOR, MILL COVE, FL	1987	YES	YES
MIAMI HARBOR, FL (CLEANUP)	1987	NO	NO
PONCE HARBOR, PR	1987	YES	YES
RANDLEMAN LAKE, NC	1987	YES	NO
SOWASHEE CREEK, MS	1987	YES	YES

FY 1985 - 1990 NEW START CONSTRUCTION PROJECTS

H-35

DIVISION/PROJECT	FY OF FIRST CONSTRUCTION FUNDS	COST SHARING AGREEMENT	
		REQUIRED	EXECUTED
(1)	(2)	(3)	(4)
THREEMILE CREEK, AL	1987	YES	YES
VILLAGE CREEK, AL	1987	YES	YES
CHARLESTON HARBOR, SC	1988	YES	YES
INDIAN RIVER COUNTY - VERO BEACH COMPONENT, FL	1988	YES	NO
KISSIMMEE RIVER, FL	1988	YES	NO
MANATEE HARBOR, FL	1988	YES	NO
MIAMI RIVER PARK, FL	1988	YES	NO
OATES CREEK, RICHMOND COUNTY, GA	1988	YES	YES
FORT TOULOUSE, AL	1990	YES	NO
HAMLET CITY LAKE, NC	1990	YES	NO
MANATEE COUNTY, FL	1990	YES	NO
MOUND STATE PARK, AL	1990	YES	NO
ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA	1990	YES	NO
SARASOTA COUNTY, FL	1990	YES	NO
SATILLA RIVER BASIN, GA	1990	YES	NO
OHIO RIVER			
GALLIPOLIS LOCKS & DAM, WV & OH	1985	NO	NO
CAMPGROUND LAKE, KY	1988	YES	NO
GALLATIN COUNTY STREAMBANK EROSION, AREA 1, OHIO RIVER, IL	1988	YES	NO
GRAYS LANDING, LOCK AND DAM 7, MONONGAHELA RIVER, PA	1988	NO	NO
KANAWHA RIVER, CHARLESTON, WV (STREAMBANK EROSION PROTECTION)	1988	YES	NO
KANAWHA RIVER, ST ALBANS, WV (STREAMBANK EROSION PROTECTION)	1988	YES	NO
MASSILLON, OH - WALNUT AND CHERRY STREET BRIDGES	1988	YES	NO
SALYERSVILLE, KY	1988	YES	NO
POINT MARION, LOCK AND DAM 8, MONONGAHELA RIVER, PA & WV	1990	NO	NO
WINFIELD LOCK AND DAM, WV	1990	NO	NO
NORTH CENTRAL			
BASSETT CREEK, MN	1985	YES	YES
CLEVELAND HARBOR, OH 1/ 3/	1985	YES	YES
DES MOINES RECREATION RIVER AND GREENBELT (DRAG), IA - GREENBELT	1985	YES	YES
ELLICOTT CREEK, NY	1985	YES	YES
GENEVA-ON-THE-LAKE, OH	1985	YES	YES
PORT ONTARIO, NY	1985	YES	YES
UPPER MISS RVR SYSTEM ENVIR MANGMENT PLAN, IL, IA, MO, MN, & WI	1985	YES	YES
RED ROCK DAM AND LAKE, IA	1987	YES	NO
SILVER BAY HARBOR OF REFUGE, MN	1987	YES	NO
SOUTH FORK ZUMBRO RIVER AT ROCHESTER, MN	1987	YES	YES
SOUTH QUINCY LEVEE AND DRAINAGE DISTRICT, IL	1987	YES	YES
CHASKA, MN	1988	YES	YES
DES MOINES RECREATION RIVER AND GREENBELT (DRAG), IA - BENNINGTON	1988	YES	YES
HANNIBAL, MO	1988	YES	YES
MAUMEE BAY STATE PARK, OH	1988	YES	NO
MUCK LEVEE, IL	1988	YES	NO

FY 1985 - 1990 NEW START CONSTRUCTION PROJECTS

N-35 DIVISION/PROJECT (1)	FY OF FIRST CONSTRUCTION FUNDS (2)	COST SHARING AGREEMENT REQUIRED (3)	COST SHARING AGREEMENT EXECUTED (4)
NORTH BRANCH CHICAGO RIVER, IL	1988	YES	YES
PRESQUE ISLE PENINSULA, PA (PERMANENT)	1988	YES	YES
RENO BEACH HOWARD FARMS, OH	1988	YES	YES
STATE ROAD AND EBNER COULEES, WI	1988	YES	YES
WATERLOO, IA, BRIDGES	1988	YES	NO
LITTLE CALUMET RIVER, IN	1990	YES	NO
LOVES PARK, IL	1990	YES	NO
O'HARE RESERVOIR, IL	1990	YES	NO
SHEYENNE RIVER, ND 4/	1990	YES	NO
SMALL BOAT HARBOR, BUFFALO HARBOR, NY	1990	YES	NO
LOWER MISSISSIPPI			
ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA (MR&T)	1985	NO	NO
EIGHT MILE CREEK, AR (MR&T) 1/ 2/	1985	YES	NO
LOCK & DAM 26, SECOND LOCK, IL & MO	1985	NO	NO
MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA	1985	YES	YES
PEARL RIVER, SLIDELL, ST. TAMMANY PARISH, LA	1985	YES	YES
MISSISSIPPI RIVER DELTA REGION, LA (CAERNARVON) (MR&T)	1987	YES	YES
EAST ST. LOUIS & VIC, IL	1988	YES	YES
HELENA HARBOR, PHILLIPS COUNTY, AR (MR&T)	1988	YES	YES
L ANGUILLE RIVER, AR (MR&T)	1988	YES	NO
OUACHITA RIVER LEVEES (BASCONVILLE AREA), LA	1988	YES	NO
CAPE GIRARDEAU-JACKSON METRO AREA, MO	1990	YES	NO
HARRISONVILLE & IVY LANDING LEVEE DISTRICT NO. 2, IL	1990	YES	NO
WESTWEGO TO HARVEY CANAL, LA (HURRICANE PROTECTION)	1990	YES	NO
SOUTH WESTERN			
CLEAR CREEK, TX	1985	YES	YES
COLORADO RIVER AND TRIBUTARIES, BOGGY CREEK AUSTIN, TX	1985	YES	YES
FREEPORT HARBOR, TX	1985	YES	YES
PARKER LAKE, OK 1/ 2/	1985	YES	NO
FOUNTAIN CREEK AT PUEBLO, CO	1987	YES	YES
FOURCHE BAYOU BASIN, LITTLE ROCK, AR	1987	YES	YES
GREAT BEND, KS	1987	YES	YES
HALSTEAD, KS	1987	YES	YES
LAKE WICHITA, HOLLIDAY CREEK AT WICHITA FALLS, TX	1987	YES	YES
ACEQUIAS IRRIGATION SYSTEM, NM	1988	YES	YES
ALAMOGORDO, NM	1988	YES	NO
MINGO CREEK, OK	1988	YES	YES
PUERCO RIVER AT GALLUP, NM	1988	YES	YES
RIO GRANDE FLOODWAY, TRUTH OR CONSEQUENCES UNIT, NM	1988	YES	YES
BEAVER LAKE, AR	1990	YES	NO
SIMS BAYOU AT HOUSTON, TX	1990	YES	NO
MISSOURI RIVER			

FY 1985 - 1990 NEW START CONSTRUCTION PROJECTS

M-35 DIVISION/PROJECT (1)	FY OF FIRST CONSTRUCTION FUNDS (2)	COST SHARING AGREEMENT REQUIRED (3)	 EXECUTED (4)
MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD	1985	YES	YES
WESTERLY CREEK, CO	1988	YES	YES
TRIMBLE WILDLIFE AREA, SMITHVILLE LAKE, MO	1990	YES	NO
NORTH PACIFIC			
BONNEVILLE NAVIGATION LOCK, OR & WA	1985	NO	NO
MT. ST. HELENS SEDIMENT CONTROL, WA	1986	YES	YES
ST. PAUL ISLAND HARBOR, AK	1988	YES	YES
GRAYS HARBOR, WA (1986 WRDA)	1990	YES	YES
SOUTH PACIFIC			
MERCED COUNTY STREAMS, CA	1985	YES	YES
LITTLE DELL LAKE, UT	1985	YES	YES
RICHMOND HARBOR, CA 1/ 3/	1985	YES	NO
SACRAMENTO RIVER DEEPWATER SHIP CHANNEL, CA	1985	YES	YES
FAIRFIELD VICINITY STREAMS, CA	1965	YES	YES
OAKLAND OUTER HARBOR, CA	1987	YES	NO
PAJARO RIVER, CA	1987	YES	YES
SAN LUIS REY RIVER, CA	1987	YES	YES
REDBANK AND FANCHER CREEK, CA	1987	YES	YES
WHITEWATER RIVER FLOODWARNING SYSTEM, CA	1988	YES	YES
OAKLAND INNER HARBOR, CA	1988	YES	NO
CACHE CREEK SETTLING BASIN, CA	1990	YES	NO
GUADALUPE RIVER, CA	1990	YES	NO
SANTA ANA RIVER MAINSTEM, CA	1990	YES	YES
PACIFIC OCEAN			
KAHOMA STREAM, MAUI, HI	1985	YES	YES
AGANA RIVER, GU	1987	YES	NO
MAALAEA SMALL BOAT HARBOR, MAUI, HI	1990	YES	NO

1/ LOST FIRST NEW START STATUS BECAUSE LOCAL COOPERATION AGREEMENTS WERE NOT EXECUTED BY 30 JUNE 1986.

2/ REGAINED NEW START STATUS IN FY 1987

3/ REGAINED NEW START STATUS IN FY 1988

4/ SHEYENNE HAS TWO SEPARABLE ELEMENTS AND WAS COUNTED BY ADMIN AS TWO NEW STARTS

SECTION 719 OF PUBLIC LAW 99-662

Mr. BEVILL. Please update the Committee on the status of any actions you have taken in response to Section 719 of Public Law 99-662.

Mr. PAGE. A staff study has been completed and it is being reviewed within the Corps.

FLOOD PLAIN MANAGEMENT AND SECTION 22

Mr. BEVILL. Are the Flood Plain Management Services and Section 22 planning assistance to the states programs being carried out at 100% Federal cost in FY 1990 as directed in the FY 1990 Conference Report?

Mr. PAGE. Yes, all effort under both of these activities in FY 1990 is being funded from Federal funds.

FY 1990 RESTORATION OF O&M FUNDS

Mr. BEVILL. The FY 1990 Energy and Water Development Appropriation Act restored the $84,000,000 reduction in the Corps operation and maintenance program. Are the projects that would have been impacted by the proposed reductions being operated and maintained as directed by Congress?

Mr. PAGE. Yes, to the best of my knowledge, they are.

CLAUSE IN LOCAL COOPERATION AGREEMENTS ON HAZARDOUS MATERIALS

Mr. BEVILL. The Committee has learned that local cooperation agreements are now required to include a clause relating to hazardous materials that might be discovered before or during project construction. Please provide a copy of the clause for the record.

Mr. PAGE. We have developed separate clauses for flood control projects and for harbor projects. I am happy to provide them for the record.

(The information follows:)

HAZARDOUS SUBSTANCES LANGUAGE
FOR INCLUSION IN
LOCAL COOPERATION AGREEMENTS FOR
HARBOR PROJECTS

Article XX- Hazardous Substances

a. After execution of this Agreement and upon direction by the Contracting Officer, the Local Sponsor shall perform, or cause to be performed, such environmental investigations as are determined necessary by the Government to identify the existence of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC 9601-9675, on lands necessary for Project construction, operation, and maintenance. All actual costs incurred by the Local Sponsor which are properly allowable and allocable to performance of any such environmental investigations shall be included in total project costs and cost shared as a construction cost in accordance with (applicable section) of Public Law 99-662.

b. In the event it is discovered through an environmental investigation or other means that any lands, easements, rights-of-way, or disposal areas to be acquired or provided for the Project contain any hazardous substances regulated under CERCLA, the Local Sponsor shall provide prompt notice to the Government and shall not proceed with the acquisition of lands, easements, rights-of-way, or disposal areas until so directed by the Government.

c. The Government shall, after consultation with the Local Sponsor, but in its sole discretion, determine whether to initiate construction of the Project, or if already in construction, to continue with construction of the Project, or to terminate construction of the Project for the convenience of the Government in any case where hazardous substances regulated under CERCLA are found to exist on any lands (including submerged lands) necessary for the Project. Should the Government determine to proceed or continue with construction after considering any liability that may arise under CERCLA, the Local Sponsor shall be solely responsible for any and all necessary clean up and response costs, to include the costs of any studies and investigations necessary to determine the extent of and appropriate response to the contamination. Such costs shall not be considered a part of total project costs as defined in this Agreement. In the event the Local Sponsor fails to provide any funds necessary to pay for clean up and response costs or to otherwise discharge its responsibilities under this paragraph upon direction by the Government, the Government may either terminate or suspend work on the Project or proceed with further work as provided in Article (cite to Termination or Suspension Article of Local Cooperation Agreement).

d. The Local Sponsor and the Government shall consult with each other under the Construction Phasing and Management Article of this Agreement to assure that responsible parties bear all necessary cleanup and response costs as defined in CERCLA. Any decision made pursuant to paragraph c of this Article shall not relieve any party from any liability that may arise under CERCLA.

e. The Local Sponsor shall perform its responsibilities under this Agreement, including the dredging of berthing areas or access channels, and operation and maintenance of any required disposal facilities, in a manner so that liability will not arise under CERCLA.

f. In the event liability does arise in the construction of the general navigation features of the Project, or in the construction, operation or maintenance of features of the Project other than general navigation features for which the Sponsor is responsible under this Agreement, to include berthing areas, access channels, and provision of required disposal facilities, the Local Sponsor shall indemnify the Government for any cleanup costs or response costs for which the Government is found liable under CERCLA.

HAZARDOUS SUBSTANCES LANGUAGE
FOR INCLUSION IN
LOCAL COOPERATION AGREEMENTS FOR
LOCAL FLOOD PROTECTION PROJECTS

ARTICLE XX- HAZARDOUS SUBSTANCES

a. After execution of this Agreement and upon direction by the Contracting Officer, the Local Sponsor shall perform, or cause to be performed, such environmental investigations as are determined necessary by the Government to identify the existence of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 USC 9601-9675, on lands necessary for Project construction, operation, and maintenance. All actual costs incurred by the Local Sponsor which are properly allowable and allocable to performance of any such environmental investigations shall be included in total project costs and cost shared as a construction cost in accordance with (applicable section) of Public Law 99-662.

b. In the event it is discovered through an environmental investigation or other means that any lands, easements, rights-of-way, or disposal areas to be acquired or provided for the Project contain any hazardous substances regulated under CERCLA, the Local Sponsor shall provide prompt notice to the Government and shall not proceed with the acquisition of lands, easements, rights-of-way, or disposal areas until so directed by the Government.

c. The Government shall, after consultation with the Local Sponsor, but in its sole discretion, determine whether to initiate construction of the Project, or if already in construction, to continue with construction of the Project, or to terminate construction of the Project for the convenience of the Government in any case where hazardous substances regulated under CERCLA are found to exist on any lands necessary for the Project. Should the Government determine to proceed or continue with construction after considering any liability that may arise under CERCLA, the Local Sponsor shall be solely responsible for any and all necessary clean up and response costs, to include the costs of any studies and investigations necessary to determine the extent of and appropriate response to the contamination. Such costs shall not be considered a part of total project costs as defined in this Agreement. In the event the Local Sponsor fails to provide any funds necessary to pay for clean up and response costs or to otherwise discharge its responsibilities under this paragraph upon direction by the Government, the Government may either terminate or suspend work on the Project or proceed with further work as provided in Article (cite Termination or Suspension Article Of Local Cooperation Agreement).

d. The Local Sponsor and the Government shall consult with each other under the Construction Phasing and Management Article of this Agreement to assure that responsible parties bear all necessary cleanup and response costs as defined in CERCLA. Any decision made pursuant to paragraph c of this Article shall not relieve any party from any liability that may arise under CERCLA.

e. The Local Sponsor shall operate, maintain, repair, replace, and rehabilitate the Project in a manner so that liability will not arise under CERCLA.

f. In the event liability does arise in the construction, operation, maintenance, repair, replacement, and rehabilitation of the Project, the Local Sponsor shall indemnify the Government for any cleanup costs or response costs for which the Government is found liable under CERCLA.

PROVISIONS OF PUBLIC LAW 99-662 RELATING TO HAZARDOUS MATERIALS

Mr. BEVILL. Do the local cooperation requirements specified in Public Law 99-662 address responsibilities for dealing with hazardous wastes regulated under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)?

Mr. PAGE. No. Public Law 99-662 has no specific provisions that address hazardous waste responsibilities. The clause that we developed on this subject was developed purely as a policy matter. The clause recognizes that Federal and non-federal responsibilities in connection with civil works projects pose CERCLA liability risks and that under CERCLA certain categories of individuals are strictly liable for clean up and response costs that are associated with the release or threatened release of hazardous substances. We believe that it is in the interest of the Government and the project sponsors to have a specific contract provision which addresses in advance Federal and non-federal responsibilities for hazardous substances.

NECESSITY FOR HAZARDOUS MATERIALS PROVISION IN LCAs

Mr. BEVILL. Why did you feel it was necessary to include such a condition in local cooperation agreements?

Mr. PAGE. The purpose of the clause is to insure that Civil Works project funds are applied to their intended purposes and not used for the broader purpose of cleaning up hazardous substances, which, as you know, is a responsibility of the parties causing the contamination under CERCLA. The agreement language was developed by the Department of the Army in conjunction with OMB and the Department of Justice and recognizes that under CERCLA certain individuals are strictly liable for cleanup and response costs associated with the release or threatened release of hazardous substances. The clause provides that, as between the Government and the local sponsor, the local sponsor shall be responsible for all clean up and response costs associated with hazardous substances. The clause does not, however, relieve third parties of any liability that may arise under CERCLA and in no way restricts the sponsor from pursuing any actions it may have against third parties who otherwise may be liable under CERCLA.

The clause also provides for performing environmental investigations to identify the existence of hazardous substances and for sharing such costs as total project costs. If a decision is made to avoid a hazardous wastes site by redesigning the project, the costs of redesign and constructing the change will also be cost shared in accordance with the basic project purposes.

EXISTING LCAs WITH HAZARDOUS MATERIAL CLAUSE

Mr. BEVILL. Have any LCAs been signed that contain the hazardous substances clause?

Mr. PAGE. Eight LCAs have been signed with an earlier, shortened version of the clause. Since the current language was developed, 2 additional LCAs were signed: Santa Ana and Cache Creek. The Reclamation Board of the State of California has requested a revision in the approved language, asking relief from the requirement to indemnify the Government for response and clean up costs which result from Government or Government contractor negligence during construction. We are currently reviewing this request.

DELAYS DUE TO HAZARDOUS MATERIAL CLAUSE

Mr. BEVILL. Are any LCAs being delayed specifically because of the inclusion of the hazardous materials clause? If so, please provided a list for the record.

Mr. PAGE. No LCAs have been delayed to date as a result of a sponsor's reluctance or refusal to accept this language. There are approximately eight other LCAs scheduled for execution in the next 30 to 45 days. The LCAs are for the North Branch, Chicago River Number 29A; North Branch, Chicago River Debris Removal; Grays Harbor; the Horace Element of the Sheyenne River; Sacramento Urban Levee Reconstruction; Sacramento Bank Protection Number 43; Atlantic Coast of Maryland; and Big Papillion Creek projects.

PROJECTS READY FOR CONSTRUCTION IN FY 91

Mr. BEVILL. Please provide for the record a list of projects that will be ready to proceed to construction in FY 1991.

Mr. PAGE. We can do that, but it will take awhile. With the Chairman's permission, I will ask General Kelly to provide such a list for the record of the Remaining Items hearing later this month.

NEW MANAGEMENT PROCEDURES

Mr. BEVILL. Mr. Secretary, your testimony states that one-half of the projects budgeted for construction last year now have cost estimates higher than a year ago and that a comparable number of schedules for those projects have slipped. Do you still feel confident that the new management procedures you have instituted in the Corps of Engineers will be successful in keeping projects on schedule and on budget?

Mr. PAGE. Yes I do. As we continue to move closer to full implementation of our project management procedures, we can reduce cost and schedule changes to acceptable levels. The changes observed in the FY 91 budget request reflect the fact that, when we first implemented the new procedures, we were faced with a large number of projects in various stages, from study to design to construction. We also needed to reassign personnel in order to deliver on the promises of the new project management focus. It has been a time consuming process, but we are now in a position to establish realistic cost estimates and schedules. The FY 91 budget estimates will become the baseline for many projects. These baselines will be managed by a project manager with authority and accountability and will provide the basis for measuring future success.

Mr. BEVILL. What specific steps have been taken to control overhead in the Corps? Has overhead decreased as a result of the new management procedures that have been put in place?

Mr. PAGE. Successful overhead control requires that managers at all levels within an organization have knowledge of overhead costs and are sensitive to the degree to which their actions affect these costs. Our goal is to have project managers aware of how the cost of their projects are influenced by overhead, to have chiefs of functional divisions--for example, Planning, Engineering--understand the extent to which their organizations are contributing to overhead, and to keep the district commander fully informed concerning overall levels of overhead costs within the context of the district's operating budget.

To meet these objectives, we have developed the capability to use information from the cost accounting data base--the record of actual expenditures--to calculate cost efficiency factors--overhead rates--for individual project and whole districts, and to track operating budget results--actual to scheduled--during the fiscal year. We have distributed preliminary estimates of district overhead and will soon be reporting project specific information through Project Executive Summaries. At the same time, we are reevaluating our accounting and cost apportionment procedures to minimize the likelihood that apparent differences in district performance reflect, instead, reporting or recording anomalies.

Even without the capabilities fully operational, the majority of our divisions are reporting no significant change in the overall level of costs which are not being directly charged to projects. In the face of rising salaries and benefits, this represents positive cost control.

GENERAL EXPENSES STAFFING

Mr. BEVILL. The Committee commends your efforts to control overhead. However, the budget justification indicates that the size of the Corps staff funded by the General Expense appropriation is increasing. How is this consistent with reducing overhead?

Mr. PAGE. Taken in isolation, the increase in FTE's requested in the General Expenses appropriation would appear to be inconsistent with the objective of reducing overhead. Even though they are not charged to projects as part of project overhead, costs incurred in the General Expenses account nevertheless represent a significant cost of doing business and should be rigorously managed. In this case, the increase in FTE's represents a transfer of personnel from other appropriations to General Expenses. Viewed in the context of the total Corps efforts to control costs, we believe that this would contribute to our objective of lower project costs to the taxpayer.

Most of the increased FTE would be used to supplement the Civil Works Directorate at Headquarters, USACE, which already has absorbed several new activities including the WRDA 86 requirement to establish an Office of Environmental Policy; the development and operation of a separate work allowance and fund control system to manage the recently established Regulatory Program account; and, of course, our initiatives to provide better control of project costs and schedules.

As I have indicated elsewhere, we have instituted several initiatives to support project managers, including redesign of the finance and accounting system to provide more direct and timely control over project costs; development of a project management system which stresses and reinforces field accountability for meeting cost and schedule targets; development and monitoring of cost and schedule performance by Districts and Divisions; and development and implementation of improved manpower forecasting and allocation systems to insure that manpower is most efficiently moved from organizations with declining programs to those with increasing workload.

In summary, we have reviewed the allocation of the Corps workforce and selected a combination of District, Division, and Headquarters personnel which will provide maximum support for the Corps Civil Works mission. Any apparent increase in overhead would be offset by reductions in costs elsewhere in the budget and is designed to provide sponsors with more timely project execution and lower costs of completed projects.

LCAs EXECUTED IN 1989 AND LCAs SCHEDULED FOR 1990

Mr. BEVILL. Please provide for the record a list of the LCAs executed in 1989 and those scheduled for execution in 1990.

Mr. PAGE. I will provide the LCA lists for the record.

(The information follows:)

DIVISION	LCAs EXECUTED FY 1989	LCAs SCHEDULED FY 1990
New England:		
		Revere Beach, MA Town Brook, MA
North Atlantic:		
	Cape May Inlet, NJ Delaware Coast, DE Tangier Island, VA Virginia Beach, VA	Atlantic Coast of MD, MD Lock Haven, PA Shinnecock Inlet, NY Great Egg Harbor/ Park Beach, NJ Hempstead Harbor, NY
South Atlantic:		
	Village Creek, AL Wando Extension, Charleston, SC	Manatee County, FL Manatee Harbor, FL Shingle Creek (C&SF), FL Wrightsville Beach, NC Sarasota County, FL Roanoke R. Upper Basin, VA
Ohio River:		
	None	Turtle Creek, PA
North Central:		
	Gentilly, MN Hannibal, MO Jester Park, IL Port Austin, MI Presque Isle, PA	Clinton Design Deficiency, IL Horace (Sheyenne R.), ND Little Calumet River, IN Loves Park, IL N. Branch Chicago R. Debris, IL N. Branch Chicago R. #15, IL N. Branch Chicago R. #29A, IL O'Hare Reservoir (CUP), IL Souris River Basin, ND

DIVISION	LCAs EXECUTED FY 1989	LCAs SCHEDULED FY 1990
Lower Mississippi Valley:		
	Alton-to-Gale Levees, IL	Cape Girardeau-Jackson, MO
	Helena Harbor (MR&T), AR	East St. Louis I-III, IL
		Harrisonville/Ivy Landing, IL
		Mississippi and Louisiana Estuarine Areas, MS and LA
		Nonconnah Creek (MR&T), TN
		Westwego to Harvey Canal, LA
Southwestern:		
	Acequias II, NM	Acequias III, NM
		Beaver Lake, AR
		Fort Gibson, OK
		Halstead, KS
		Sims Bayou, TX
Missouri River:		
	Papillion Creek, NE	Big Papillion Cr. Channel, NE
North Pacific:		
	McCorkle Creek, WA	Grays Harbor, WA
South Pacific:		
	Sacramento River Bank Protection #42, CA	Cache Creek, CA
	Whitewater Flood Warning, CA	Guadalupe River, CA
		Sacramento River Bank Protection #43, CA
		Sacramento R. Bank Mitigation, CA
		Sacramento Urban Levees, CA
		Santa Ana, CA
		Ventura Pierpont, CA
Pacific Ocean:		
		Maalaea Small Boat Harbor, MI

AUTHORITY FOR OIL SPILL RECOVERY STUDY

Mr. BEVILL. Under what authority is the Corps conducting the engineering study to retrofit Corps hopper dredges to enhance oil recovery operations?

Mr. PAGE. The engineer study on oil spill recovery we are undertaking in FY 90 comes under our general research and development authority, which enables the Corps to pursue research and development relating to authorized Civil Works missions of the Corps of Engineers. The Corps has clearly established missions in maintaining navigation channels and harbors, and the removal of obstructions to navigation, including oil.

SEPARABLE ELEMENTS

Mr. BEVILL. Please provide for the record a list of the separable elements that will be initiated in FY 1991.

Mr. Page. Funds are included in the FY 9991 budget request to initiate five separable elements of the Alton to Gale Organized Levee Districts deficiency correction project in Illinois and Missouri. The work will be cost shared on a 75/25 percent Federal/non-Federal basis. The elements are:

Element	FY 1991 Request
Prairie du Rocher	$133,000
Clear Creek	40,000
Bois Brule	35,000
Degognia - Fountain Bluff	158,000
Grand Tower	67,000
Total	$433,000

REGULATORY PROGRAM

Mr. BEVILL. You have requested that $4,000,000 of FY 1990 Regulatory Program funds initially allocated to the bridge administration function be reprogrammed to other activities in the Corps Regulatory Program. Please provide the Committee with additional justification for the proposed reprogramming including a detailed breakdown of how the funds will be utilized and why the additional funds are required.

Mr. PAGE. In late FY 1989, the regulatory program received $2.225 million in supplemental funding for wetlands training and enforcement. Since authorization to transfer the bridge administration program to the Corps has not been enacted, $4 million in FY 1990 appropriations is available for reprogramming to other activities. With this $4 million, we can continue to support the increased level of enforcement initiated last year and enhance other resource protection areas of the program. A specific breakout of our use of the $4 million, minus 1.4 percent for the G-R-H reduction, follows:

Enforcement and Surveillance: $2,460,000
Most of these funds will go toward compliance monitoring of permitted projects and investigation of violations. Funds are also included for some wetland mapping and delineation contracts.

Permit Evaluation: $1,040,000
Funds are included for a variety of efforts designed to improve permit evaluation efficiency, reduce delays, and ensure better quality decisions. To reduce delays, we are initiating or continuing contracts for jurisdiction determinations, which now exceed 25,000 determinations a year. We are also upgrading and expanding our computer operations in many districts. This is critical to our efficient management and tracking of permit applications and ultimately reduces delays for the regulated public. In addition, we will increase somewhat the FY 1990 allotments for certain normal operations such as travel to permit sites, printing of public notices, and training.

Studies: $327,000
These funds are mostly for initiation or completion of Special Area Management Plans which consider potential impacts of permits in areas of intensive development or sensitive ecology. We encourage these studies to predict impacts, but have not had available funds to conduct them in past years.

Environmental Impact Statements (EIS's): $117,000
These additional funds will allow us to more efficiently complete some ongoing EIS's, as well as to initiate some new EIS's not anticipated in the original budget request.

TOTAL: $3,944,000

VENTURA HARBOR, CA

Mr. BEVILL. The Committee understands that the Corps will not be complying with the direction contained in the FY 1990 Conference Report relating to Ventura Harbor even though following that direction would result in savings to the Government. What is your rationale for not proceeding as directed by Congress?

Mr. PAGE. Sir, we believe we have complied with the Conference Committee Report guidance on Ventura-Pierpont to the extent possible under existing project authorities. We are, consistent with the Conference Committee desires on this subject, using a portion of the sand dredged from Ventura Harbor to accomplish the beach nourishment between groin number one and groin number two, and we expect that this initiative will result in a savings of costs over alternative methods of restoring the beach. As you know, however, the Ventura-Pierpont project is an existing authorized project and any construction or operation and maintenance that is pursued on the project must be consistent with the existing project legislation. Under this legislation beach restoration costs are a 100 % non-federal operation and maintenance responsibility. Accordingly, additional legislation would be required for the Federal Government to assume the costs of beach restoration. I am pleased to report that the work on the project is proceeding expeditiously. The groin repairs were completed on January 30,1990, and dredging to provide sand for the beach is underway and expected to be completed by March 1,1990.

SMALL BUSINESS SET-ASIDE FOR CORPS OF ENGINEERS DREDGING

Mr. BEVILL. Mr. Secretary, would you provide for the record an analysis of the additional cost to the taxpayers of restricted competition on Corps of Engineers projects, especially dredging projects.

Mr. PAGE. Absent the actual outcome of unrestricted bidding for all contracts, it is not possible to finitely quantify either cost or saving to the Government. However, as a result of small business setasides, the actual results shown in this table would indicate that the setaside and unrestricted bidding climates are producing essentially the same result. I will provide you the table for the record.

SUMMARY OF BID RESULTS FOR SMALL BUSINESS PROGRAM

	No. of Jobs	Govt. Est.	Low Bid	Dollar Savings	Percent Savings
		-- Millions of Dollars --			
Setaside	69	48.93	42.13	6.80	13.90
Unrestricted	139	348.48	306.97	41.51	11.91

SMALL BUSINESS SET-ASIDE FOR CORPS OF ENGINEERS DREDGING

Mr. BEVILL. Mr. Secretary, please provide this Committee with a report on what percentage of the Corps dredging work is being set aside for small businesses when the projects which cannot be performed by small business companies because they do not have the necessary equipment is excluded from the total to which the percentages apply.

Mr. PAGE. Such an analysis would be highly speculative. While it might appear reasonable to conclude that small businesses could not compete in the hopper dredge business, in fact, we have had small business concerns which owned a hopper dredge and bid on dredging contracts. However, at some point, equipment, ownership and operating costs would cause the owner of that equipment to exceed the small business size criteria.

McCOOK RESERVOIR, IL

Mr. BEVILL. What is the status of your reevaluation of the McCook Reservoir?

Mr. PAGE. The reevaluation study is underway. A plan of action, which defines the scope of studies and associated time and cost estimates, and contains a detailed schedule for completing the study, has been prepared. We are presently compiling the data and information needed to accomplish the study.

Mr. BEVILL. What timeframe have you established for completion of the reevaluation and when do you expect to submit your report to Congress?

Mr. PAGE. A draft report will be completed by the Chicago District Engineer by late June 1990. The North Central Division Engineer will submit the final report to the Office, Chief of Engineers in mid-September 1990. The report is scheduled to be submitted to the Congress by the end of November 1990 following a Washington level review.

Mr. BEVILL. Is more time needed beyond the 1990 fiscal year in order to do a complete and thorough reevaluation and examination of the McCook reservoir and possible alternatives?

Mr. PAGE. A reevaluation study will be completed by the District and Division Engineers in Fiscal Year 1990. However, the full and timely cooperation of two quarry companies, whose quarries will be considered in the study, will be needed in order to meet the schedule. The companies involved are the Vulcan Materials Company and the Material Service Corporation. They will be requested to provide information on their quarry facilities, future mining plans, stone reserves, markets, and mining and operating costs. The thoroughness of the study will depend heavily on the amount and detail of the data provided by the quarry companies.

DOD HIRING FREEZE

Mr. BEVILL. General Hatch, is the Corps of Engineers being affected by the hiring freeze currently in place for the Department of Defense? What will the impact be if the freeze continues into the spring and summer when the Corps traditionally hires a large number of temporary employees?

General HATCH. Yes, the Corps of Engineers is being affected by the DOD hiring freeze. The affect that the freeze has upon the Corps will depend on the length of time that the freeze contimues. The Corps has three categories of work that are affected by this action, two of which are of interest to this committee. They are the Civil Works program, our Support for Others program by which we perform work for other agencies on a reimbursable basis, both civil and military, and the third is our Military program.

In general, as the freeze continues, there is likely to be some degredation of our capability. Field commanders have expressed concern in the areas of delayed construction awards due to inability to place personnel on new construction sites; reduced shifts at some projects; the potential for tieing up some dredges or other floating plant; potential slippage of some design and construction projects; delayed processing of permits; reduction in enforcement activities; and some impact on project and public safety during the peak visitation season.

There are some avenues by which we can mitigate these impacts. There are provisions for requesting exceptions from the freeze for key vacancies and have we already initiated some requests. Also, we will be able to adjust in many cases through temporary detail of personnel to areas of need. In addition, the freeze does not apply to the summer hire program. We will use the channels available to minimize the impact of the freeze on Corps programs.

Mr. BEVILL. General, what is the status of the Mobile Harbor deepening project? Are additional funds required to complete the work?

General HATCH. The scheduled plan of improvement consisting of deepening the 600 foot wide entrance channel from 42 feet to 47 feet for a distance of 6.1 miles, and deepening the 400 foot wide bay channel from 40 feet to 45 feet for a distance of 31.2 miles will be completed in June 1990. Funds in the amount of $26,163,000 have been allocated to the project through FY 1989 and $1,899,000 were allocated in FY 1990, for a total of 28,062,000. These funds will be sufficient to complete the scheduled work. The non-Federal share of the scheduled work is $13,370,000. The unscheduled work consisting of deepening and widening the entrance channel to 57 feet by 700 feet, the bay channel to 55 feet by 550 feet, and providing an anchorage area and turning basin will be considered for construction at such time as the non-Federal sponsor is willing to provide the requirements of local cooperation. The total cost of the unscheduled work is $444,100,000, cost shared $232,200,000 Federal and $211,900,000 non-Federal.

PROJECT MODIFICATION FOR IMPROVEMENT OF ENVIRONMENT
SECTION 1135, PUBLIC LAW 99-662

Mr. BEVILL. The budget request includes $5,000,000 for project modifications for improvement of the environment under the authority of Section 1135 of Public Law 99-662. Have the projects where that money will be utilized been selected?

General HATCH. Final selections have not been made. We do have proposals which are under review.

POLICY AND PROCEDURE OPTIONS FOR PROJECT O&M

Mr. BEVILL. The FY 1991 budget request includes $1 million for a study of policy and procedure options for operation and maintenance. The justification material indicates that you will be initiating this effort in FY 1990. The Senate Report directed the Corps to undertake a similar study. However, the Conference Report for FY 1990 directed the Corps not to undertake the O&M study until a study of Corps organizational structures was complete. Why are you proceeding with this O&M study in light of the direction provided in the Conference Report?

General HATCH. There are important differences between the O&M study set forth in the Senate Report and the O&M study which we are initiating. We are making a commitment, for example, to a multi-year effort whereas the Senate Report directed a 12 month study. The experiences of a year ago taught us that a single budget cycle does not afford sufficient opportunity to responsibly address the many issues surrounding the Corps O&M program. Thus, the study of Corps organizational structure is proceeding ahead of, and will not be disadvantaged in any way by, our O&M study.

The organization and focus of our O&M study are quite different from that of the Senate Report study. We have delineated five broad themes or categories to guide the study and we are placing emphasis on policy and procedure options to be used in budget formulation. And, finally, we have determined that use of an outside contractor to investigate options for all five O&M study themes will be beneficial whereas, I believe, the Senate report anticipated an in-house study performed by the Corps.

It is because I wish members of the Subcommittee to understand what we intend to accomplish by means of our O&M study that I requested, in my opening statement, to include the O&M Plan of Study in the record of these hearings.

WORK FOR OTHER FEDERAL AGENCIES
AND STATE AND LOCAL GOVERNMENTS

MR. BEVILL. Please provide a detailed breakdown, including the dollar volume and manpower requirements, of the work the Corps will perform in FY 1990 for other Federal agencies and state and local governments. What is the outlook for work for others in FY 1991?

General HATCH. Yes, sir.

(The information follows:)

Mr. BEVILL. What is the Corps policy on accepting work for others?

General HATCH. We look at our Support for Others program as an opportunity to enhance our capability to accomplish our mission. The work we accept must be consistent with the USACE organization purpose and must be accomplished within manpower and resource constraints. The kind of work we take on should maintain or enhance our ability to perform our assigned missions and must not adversely impact on the accomplishment of them. Our support for others work is accomplished using our breadth of technical skills and is a quality product, on time, and within cost just as we provide our mission customers. And, finally, the work we take on is done in partnership with the design and construction talents of the private sector whenever feasible.

PROJECTED WORK FOR OTHERS RESOURCE REQUIREMENTS 1/

AGENCY	FY 90 $	FY 90 Manpower	FY 91 $	FY 91 Manpower
Department of Energy 2/	50	50	50	50
Environmental Protection Agency				
Superfund	150	398	150	398
Construction Grants	18	347	17	327
FEMA	5	77	5	63
NASA 2/	60	25	100	30
Other Federal Agencies	65	180	65	180
State and Local Governments	65	50	65	50
TOTAL	413	1,127	452	1,098

1/ Dollars in million and manpower in full time equivalent (FTE) except where noted. Chart does not include programs where we have offered Corps support but have not negotiated agreements (i.e, Federal Bureau of Prison Construction, DOE (Supercollider, new production reactors, radioactive waste), and State Department embassy construction program).

2/ Resourced with military manpower.

CONTINUING AUTHORITIES PROGRAMS
STATUS OF PROJECTS ADDED IN FY 1990

Mr. BEVILL. Is the Corps proceeding with the projects under the Continuing Authorities Programs listed in the House and Senate reports as directed in the Conference Report accompanying the FY 1990 Appropriations Act?

General HATCH. We will supply the status of these projects for the record, Mr. Chairman.

(The information follows:)

STATUS OF CONTINUING AUTHORITIES PROJECTS
ADDED BY CONGRESS IN FY 1990

PROJECT	STATUS
BEDFORD, IA (SEC 205)	FEASIBILITY STUDY UNDERWAY
ROSEAU RIVER, DUXBY LEVEE, MN (SEC 205)	PROJECT FEASIBILITY UNDER REVIEW. WILL PROCEED AS A REGULAR CONSTRUCTION PROJECT.
SALMON RIVER, ID (FRAZIL ICE) (SEC 205)	FEASIBILITY STUDY UNDERWAY
BURTON ROAD, MORGAN CO., IN (SEC 14)	SCHEDULED FOR CONSTRUCTION FY 90
CLAY CITY, KY (SEC 205)	RECONNAISSANCE STUDY UNDERWAY
FAIRGROUND PARK, CLARKSVILLE, TN (SEC 14)	FEASIBILITY STUDY TO BE INITIATED IN FY 90
MONTICELLO AVE, CHICAGO, IL (SEC 205)	RECONNAISSANCE STUDY UNDERWAY
FEATHER CREEK, CLINTON, IN (SEC 205)	FEASIBILITY STUDY UNDERWAY
LITTLE TURTLE CREEK, SULLIVAN CO., IN (SEC 14)	PLANS AND SPECIFICATIONS UNDERWAY
SOUTH FORK OF WILDCAT CREEK, TIPPECANOE CO., IN (SEC 14)	
COUNTY ROAD 7E	SCHEDULED FOR CONSTRUCTION FY 90
COUNTY ROAD 1000E	FEASIBILITY STUDY UNDERWAY
WABASH RIVER, VIGO CO., IN (SEC 14)	CONSTRUCTION UNDERWAY
DINNER KEY BEACH LANDING, FL (SEC 103)	NO EXPRESSION OF INTEREST FROM LOCAL INTERESTS
SOUTH BRUNSWICK, GA (SEC 107)	CONSTRUCTION UNDERWAY
WATSON ISLAND PARK, FL (SEC 103)	RECONNAISSANCE STUDY TO BE INITIATED IN FY 90 UNDER GENERAL INVESTIGATIONS PROGRAM. PROJECT LIKELY TO EXCEED SECTION 103 LIMITS.
BISBEE, AZ (SEC 205)	RECONNAISSANCE STUDY UNDERWAY
CARLESBAD BEACH, CA (SEC 103)	RECONNAISSANCE STUDY UNDERWAY

STATUS OF CONTINUING AUTHORITIES PROJECTS
ADDED BY CONGRESS IN FY 1990

PROJECT	STATUS
LAKE ELSINORE, CA (SEC 205)	PLANS AND SPECIFICATIONS UNDERWAY
MISSION ZANJA CREEK, CA (SEC 205)	PLANS AND SPECIFICATIONS UNDERWAY
MOHAVE CO., FLOOD WARNING, AZ (SEC 205)	RECONNAISSANCE STUDY TO BE INITIATED IN FY 90
MILL CREEK, FORT SMITH, AR (SEC 205)	CONSTRUCTION UNDERWAY
SANTA FE RIVER, SANTA FE, NM (SEC 14)	PROJECT COST WOULD EXCEED SECTION 14 LIMITS. RECONNAISSANCE STUDY UNDERWAY WITH GENERAL INVESTIGATIONS FUNDS.
WHITE RIVER, BATESVILLE, AR (SEC 205)	PLANS AND SPECIFICATIONS UNDERWAY

BRIDGE ADMINISTRATION FUNCTION

Mr. BEVILL. What is the status of legislation authorizing the transfer of the bridge administration function from the U.S. Coast Guard to the Corps of Engineers?

General HATCH. The Administration's proposal was introduced last year in the House of Representative by Chairman Jones in April, and the bill, H.R. 1755, was jointly referred to the Committee on Merchant Marine and Fisheries and the Committee on Public Works and Transportation. A hearing was held on the proposal by the Merchant Marine Coast Guard and Navigation Subcommittee, and in June the full committee ordered it reported, as amended. The Public Works Committee has not taken any action on the proposal. The 1989 Coast Guard Authorization bill, S. 1512, which was approved by the Senate last year included a provision to transfer the bridge administration function to the Corps. However, this provision was deleted by the Conferees, and it was not included in the final version of the bill that was enacted.

A-76 STUDIES

Mr. BEVILL. Please provide for the record a listing of the A-76 studies planned for FY 1991. What will be the cost of performing those studies?

General HATCH. We estimate that the cost of performing the A-76 studies scheduled for FY 1991 is approximately $3,225,000. A listing of those studies follows:

COMMERCIAL ACTIVITIES (CA) STUDIES
FY 1991

STUDY TITLE	LOCATION	CW FTES
REC AREA O&M, LAKE GREESON	MURFREESBORO, AR	34.00
REC AREA O&M, DEGRAY LAKE	ARKADELPHIA, AR	40.00
REC AREA O&M, OUACHITA LAKE	MT. PINE, AR	46.00
ADP SUPPORT	NEW ORLEANS, LA	5.00
MAIL & MESSENGER SERVICES	NEW ORLEANS, LA	9.20
VISUAL INFORMATION SERVICES	NEW ORLEANS, LA	8.00
EMERGENCY LOCK REPAIRS	ST. LOUIS, MO	30.00
HYDROLOGIC & HYDRAULIC DATA COLL	KANSAS CITY, MO	21.00
SURVEYING	JEFFERSON CITY, MO	5.00
SURVEYING	NAPOLEON, MO	5.00
PRINTING AND REPROGRAPHICS	OMAHA, NE	6.00
HYDROLOGIC & HYDRAULIC DATA COLL	OMAHA, NEBRASKA	1.00
SUBSURFACE EXPLORATION	OMAHA, NE	11.00
STORAGE & WAREHOUSING	OMAHA, NE	2.00
STORAGE & WAREHOUSING	BUFFALO, NY	2.00
VISUAL INFORMATION SERVICES	BUFFALO, NY	2.00
MAIL & MESSENGER SERVICES	BUFFALO, NY	1.00
O&M, FLOATING PLANT	NY & OH	21.00
MAINTENANCE OF LOCKS, LOCKS 14 & 15	SCOTT COUNTY, IA	12.60
MAINTENANCE OF LOCKS, PEORIA	PEORIA, IL	13.00
DRAFTING	WALTHAM, MA	2.00
SURVEYING	WALTHAM, MA	24.00
O&M, APPLEGATE LAKE	APPLEGATE, OR	1.00
O&M, LOST CREEK LAKE	LOST CREEK, OR	7.10
O&M, ALBENI FALLS DAM	NEWPORT, WA	20.30
DRAFTING	LOUISVILLE, KY	2.90
AUDIO VISUAL	NASHVILLE, TN	3.00
O&M, CORDELL HULL LOCK & DAM	CARTHAGE, TN	1.00
O&M, CHEATHAM LOCK & DAM	ASHLAND CITY, TN	8.80
O&M, OLD HICKORY LOCK & DAM	OLD HICKORY, TN	8.80
O&M, FT LOUDOUN LOCK & DAM	LENOIR CITY, TN	10.60
O&M, WATTS BAR LOCK & DAM	SPRING CITY, TN	7.00
TYGART LAKE REAL PROP MAINTENANCE	GRAFTON, WV	2.00
YOUGIOHENY LAKE RE PROP MAINTENANCE	CONFLUENCE, PA	3.00
BERLIN LAKE REAL PROP MAINTENANCE	DEERFIELD, OH	3.00
MOSQUITO CREEK LAKE MAINTENANCE	CORTLAND, OH	2.00
SHENAGO RIVER LAKE MAINTENANCE	SHARPSVILLE, PA	3.00
KIRWAN DAM REAL PROP MAINTENANCE	WAYLAND, OH	2.00
KINZUA DAM REAL PROP MAINTENANCE	WARREN, PA	3.00
E BRANCH CLARION R LAKE MAINTENANCE	WILCOX, PA	2.00
TIONESTA LAKE REAL PROP MAINTENANCE	TIONESTA, PA	3.00
WOODCOCK LAKE REAL PROP MAINTENANCE	SAEGERTOWN, PA	3.00
MESSAGE SERVICES (MAIL ROOM)	FT SHAFTER, HI	1.00
SUPPLIES RECEIPT	CHARLESTON, SC	1.00
O&M, COMMUNICATIONS SYSTEM	JACKSONVILLE,FL	2.00
MOTOR VEHICLE OPERATIONS	JACKSONVILLE, FL	1.00
DRIFT & DEBRIS REMOVAL	JACKSONVILLE, FL	1.00
TELECOMMUNICATIONS CENTER	JACKSONVILLE, FL	4.00
ADP SUPPORT	JACKSONVILLE, FL	0.70
AQUATIC PLANT CLEARING & SNAGGING	PALATKA,FL	6.00
STORAGE & WAREHOUSING	JACKSONVILLE, FL	2.00
HEALTH SERVICES	JACKSONVILLE, FL	2.00

ADP SUPPORT	JACKSONVILLE,FL	2.30
REC AREA O&M, LAKE SIDNEY LANIER	BUFORD, GA	12.00
REC AREA O&M, ALLATOONA LAKE	CARTERSVILLE, GA	16.00
REC AREA O&M, BLK WARRIOR-TOMBIGBEE	DEMOPOLIS, AL	9.00
REC AREA O&M, ALABAMA RIVER LAKES	CAMDEN, AL	8.00
REC AREA O&M, CARTERS LAKE	OAKMAN, GA	5.00
WAREHOUSING	SAVANNAH, GA	4.00
ADP SUPPORT	SAVANNAH,GA	6.00
GRAPHICS	SAVANNAH, GA	1.00
NON A-E PLANNING SERVICES	LOS ANGELES, CA	37.00
O&M, COMMUNICATIONS EQUIPMENT	LOS ANGELES, CA	4.00
MOTOR VEHICLE OPERATIONS	LOS ANGELES, CA	4.00
PRINTING AND REPROGRAPHICS	LOS ANGELES, CA	2.00
REC AREA O&M, COCHITI LAKE	PENA BLANCA	13.20
NON A-E PLANNING SERVICES	ALBUQUERQUE	5.70
ADP SUPPORT	ALBUQUERQUE	1.60
ADP SUPPORT	DALLAS, TX	8.50
MISCELLANEOUS A-E SUPPORT	KILLEEN, TX	6.20
MISCELLANEOUS A-E SUPPORT	BOSSIER CITY, LA	3.00
MISCELLANEOUS A-E SUPPORT	GRAND PRAIRIE, TX	27.90
MISCELLANEOUS A-E SUPPORT	SAN ANTONIO, TX	17.70
MISCELLANEOUS A-E SUPPORT	FORT WORTH, TX	12.20
SURVEYING	FORT WORTH, TX	7.60
ADP SUPPORT	FORT WORTH, TX	12.00
ADMINISTRATIVE SUPPORT	FORT WORTH, TX	2.00
HYDROPOWER O&M, TOWN BLUFF DAM	JASPER, TX	3.00
HYDROPOWER O&M, WHITNEY DAM	WHITNEY, TX	3.70
SURVEYING & MAPPING	FORT WORTH, TX	4.00
SURVEYING	BROWNSVILLE, TX	6.00
SURVEYING	CORPUS CHRISTI, TX	8.00
SURVEYING	PORT ARTHUR, TX	10.00
DRAFTING	GALVESTON, TX	2.20
ADP SUPPORT	GALVESTON, TX	7.00
ADMINISTRATIVE SERVICES	GALVESTON, TX	4.00
SURVEYING	GALVESTON, TX	27.35
ADP OPERATIONS	LITTLE ROCK, AR	2.00
HYDROPOWER O&M, GREERS FERRY	HEBER SPRINGS, AR	4.00
HYDROPOWER O&M, BULL SHOALS	MOUNTAIN HOME, AR	7.00
HYDROPOWER O&M, NORFORK	MOUNTAIN HOME, AR	5.00
HYDROPOWER O&M, DARDANELLES	DARDANELLE, AR	24.00
HYDROPOWER O&M, OZARK	OZARK, AR	11.00
HYDROPOWER O&M, BEAVER	EUREKA SPRINGS, AR	3.00
HYDROPOWER O&M, TABLE ROCK	BRANSON, MO	7.00

BLACK RIVER (PORT HURON), MICHIGAN

Mr. BEVILL. General Hatch, your most recent status report to me on the Black River (Port Huron), Michigan, project indicated that you had been unable to locate a suitable dredged material disposal site. Has any progress been made towards locating a disposal site?

General HATCH. Yes, progress is being made. Dredging of the Black River project has until now been delayed due to the non-availability of a disposal site. This section of the Black River, which is severely shoaled, receives considerable use by recreational boaters. There are several new marinas in this area as well as others which are under construction which will increase the demand for dredging. Test results indicate that the sediments are suitable for unrestricted disposal. The Michigan Department of Natural Resources, the project's local sponsor, has identified a potential disposal site in Port Huron Township. The dredge material will be used as clean capping for a State-Owned Superfund site which will be under contract for clean-up by March 1990. The portion of the river to be dredged is about two (2) miles in length from near the Black River Canal to near the I-94 bridge. Dredging will be to the six (6) foot depth contour including overdepth. A maintenance dredging bid opening is scheduled in June and award in July 1990. The dredging will be done by mechanical means with off-loading at a transfer site near the Tenth Street Bridge. Approximately 50,000 cubic yards of shoal material will be removed.

Real Estate documents have been obtained for the use of the transfer site and the disposal area has been surveyed.

FY 1989 TEMPORARY SHORTAGES OF OPERATION AND MAINTENANCE FUNDS

Mr. BEVILL. In FY 1989, the Corps faced some temporary shortages of operation and maintenance funds that caused some projects to be delayed. Please describe for the Committee how O&M funds are managed and what caused that situation to develop in FY 1989. Have measures been put in place to assure that this doesn't happen again?

General HATCH. We did experience some temporary shortages of O&M funds in FY 1989. Several factors contributed to this temporary shortage. An aggressive management strategy was initiated last year to reduce unexpended carryovers which had grown to $103 million in FY 1988. We were successful in reducing the FY 1989 carryover down to $45 million. However, this strategy, along with unprogrammed requirements, and minimal savings and slippage of scheduled work, contributed to a cash flow situation that required close management to ensure that the highest priority needs were met. On numerous occasions during the year, the program was reevaluated to ensure optimal use of available funds. Hard choices had to be made that resulted in some lower priority work being delayed in order to ensure that the more critical maintenance requirements were accomplished. Overall, I believe the most important work was addressed.

Several measures have been taken this fiscal year to better cope with the ever changing needs inherent in the O&M program. In fact, a task force was convened to evaluate various alternative ways to more effectively manage O&M funds. The task force recommended several measures which have been instituted to improve the management of O&M funds. A more conservative management philosophy is being followed this year, which should reduce cash flow problems in carrying out the program. We are emphasizing more disciplined management of O&M funds at all levels in the organization so as to ensure that resources are used to perform the O&M work that is of greatest overall importance to the Nation. Due to the unpredictable nature of the O&M program, I cannot guarantee that everything will be accomplished as scheduled. However, with the measures I have described, we will be better equipped to deal with the unscheduled requirements that develop.

REORGANIZATION STUDY

Mr. BEVILL. General Hatch, is the Corps following the directions provided in the FY 1990 Conference Report with regard to the study of the Corps organizational structure described in the Senate Report?

General HATCH. Yes. The Corps is developing a strategy for the conduct of the conceptual study of potential field organization structures. Depending upon what strategy is adopted, the conceptual study will require 6-9 months.

CORPS OF ENGINEERS RECREATION STUDY

MR. BEVILL. General Hatch, you recently announced the formation of a recreation task force to develop a plan to maintain and enhance recreational opportunities at Corps' projects while reducing Federal expenditures. What will be the major focus of the study?

LTG HATCH. The foundation of the study is to be the development, enhancement, and operation of recreational facilities by non-Federal public agencies and the private sector to the maximum extent practicable. The broader flexibility that non-Federal entities possess in the kinds of facilities they can provide offers the possibility of better serving public recreational demands.

MR. BEVILL. Will the closure of facilities or deferral of maintenance in the interest of reducing spending be considered as part of the study?

LTG HATCH. No. Closure of existing facilities or deferral of maintenance as a means of reducing Federal expenditures will not be considered a part of the study.

MR. BEVILL. When will the study be completed and what will it cost?

LTG HATCH. The study is scheduled for completion on September 1, 1990 and will cost an estimated $500,000.

MR. BEVILL. In many parts of the country, Corps of Engineers projects are the primary source of outdoor recreation opportunities. Is the Corps committed to providing recreation opportunities in the future regardless of the outcome of the study?

LTG HATCH. Yes. The outcome of the study, we are convinced, will contribute to continued -- and even enhanced -- provision of recreation opportunities at Corps of Engineers projects.

EMERGENCY AUTHORITIES

Mr. BEVILL. General, 1989 was a busy year for the Corps in responding to natural disasters. At any time was the "gap" authority provided by Section 917 of P.L. 99-662 implemented?

General HATCH. Yes, Sir. In the aftermath of Hurricane Hugo, the Corps did perform some emergency services at the request of the Governor of Puerto Rico. That is the only instance, so far, that the authority has been used.

Mr. BEVILL. Does the "gap" authority of Section 917 of P.L. 99-662 allow the Corps of Engineers to respond to natural disasters that are not flood related, such as earthquakes and tornadoes?

General HATCH. No, Sir. Section 917 provides broad discretionary authority for the Corps to provide immediate recovery assistance when we are operating in the area, in response to a flood or coastal emergency. We do not interpret Section 917 as providing authority to respond to events which are not related to a flood or coastal emergency.

Alaska Oil Spill Authority

Mr. Bevill. Under what authority were the Corps hopper dredges sent to assist in the clean up of the oil spill in Alaska?

General Hatch. The Corps hopper dredges were sent to Alaska to assist in the clean up of the oil spill under authority of the Disaster Relief Act, as amended, (42 U.S.C. 5121).

MOVE TO FT BELVOIR

Mr. BEVILL. What is the status of the move of the Corps headquarters to Ft. Belvoir?

General HATCH. The Corps has been directed to look within the District of Columbia for the quality office space and permanent home which has been our goal. In accordance with this new guidance, we have initiated a process to identify and evaluate the options available to us. We expect to work closely with General Services Administration during the search and selection process.

CONSTRUCTION, GENERAL FUNDING

Mr. BEVILL. Is the Corps Construction, General budget request sufficient to maintain an economic rate of construction of ongoing projects?

General HATCH. Yes, we believe that the Construction, General request of $1,226,000,000 is adequate to continue construction of the budgeted ongoing projects at a rate consistent with recent schedules. There are several projects, however, for which funds were added by Congress and for which no follow-on funds are included in the budget.

IMPACT OF WRDA 86 FY 91 OBLIGATION CEILING

Mr. BEVILL. Do the FY 1991 obligation ceilings contained in P. L. 99-662 present any problems?

General HATCH. No, Sir, they do not.

STATUS OF FLOOD CONTROL AND COASTAL EMERGENCIES ACCOUNT

Mr. BEVILL. What is the current status of the Flood Control and Coastal Emergencies Account?

General HATCH. The status as of 12 February 1990 is as follows:

	$Million
Balance as of 1 October 1989	28.4
Revocations thru 12 February 1990	0.5
TOTAL Available for Allocation	28.9
Allocations thru 12 February 1990	20.5
BALANCE AS OF 12 FEBRUARY 1990	8.4

The current balance in the Emergency Fund will meet immediate identified requirements of $2.1 million and will allow for response to minimal flood problems over the remainder of the year. However, the spring flood season is still ahead and the extent of flooding is unknown. If severe flooding occurs, the Emergency Fund will be quickly exhausted. Funds can be reprogrammed from other appropriations to meet immediate needs. When the total requirements for the fiscal year are identified, a supplemental request could be submitted.

PERSONNEL RELATED COSTS

Mr. BEVILL. Provide for the record, by appropriation account, the funds requested for FY 1991 for personnel related costs.

General HATCH. FY 1991 personnel related costs by appropriation are provided for the record as requested. The information follows:

FY 1991 PERSONNEL COSTS BY APPROPRIATION

		($000)
General Investigations	$	86,793
Construction, General		200,372
Operation and Maintenance, General		601,704
Flood Control, MR&T		91,571
General Regulatory Program		55,969
Flood Control & Coastal Emergencies		6,850
General Expenses		93,709
Revolving Fund		15,653
Permanent Appropriations		1,053
Rivers & Harbors Contributed Funds		39,501
TOTAL	$	1,181,078

PROJECT COMPLETIONS

Mr. BEVILL. Insert in the record a list of planning and construction projects funded for completion in fiscal year 1989 and scheduled to be completed in 1990 and 1991.

General HATCH. Yes, sir.

(The information follows:)

PRECONSTRUCTION ENGINEERING AND DESIGN PROJECTS FUNDED FOR COMPLETION WITH FISCAL YEAR 1989 APPROPRIATIONS

Beach Erosion:

1. Sarasota County, FL
2. St Johns County, FL
3. Atlantic Coast of MD and Assateague Island, VA
4. Virginia Beach, VA (Hurricane Protection)

Flood Control:

1. Holbrook, AZ
2. Muscatine Island Levee & Drainage District, IA
3. Loves Park, IL
4. O'Hare Reservoir, IL
5. Little Calumet River, IN
6. Westwego to Harvey Canal, LA
7. Massachusetts Coastal, Roughans Point, Revere, MA
8. Saw Mill River at Elmsford and Greenburg, NY
9. Westchester County Streams, Mamaroneck and Sheldrake Rivers, NY
10. Logan, OH
11. Nelsonville, OH
12. Sims Bayou, Houston, TX
13. Zintel Canyon, WA

Navigation:

1. Fort Pierce Harbor, FL
2. Hudson River, FL
3. Arthur Kill Channel and Howland Hook Marina, NJ
4. Maalaea Harbor, Maui, HI
5. Gulfport Harbor, MS
6. Grays Harbor, Chehalis & Hoquiam River, WA

CONTINUING CONSTRUCTION PROJECTS FUNDED FOR COMPLETION
WITH FISCAL YEAR 1989 APPROPRIATIONS

Beach Erosion:

1. Duval County, FL
2. Roosevelt Campobello International Park, Lubec, ME & Canada
3. Presque Isle Peninsula, PA (Nourishment)
4. Tangier Island Shoreline Protection, VA

Flood Control:

1. Agana River, GU
2. Kahoma Stream, Maui, HI
3. Southwest Jefferson County, KY
4. Mankato and North Mankato, MN
5. Little Blue River Lakes, MO
6. Liberty State Park Levee & Seawall, NJ
7. Ardsley, NY
8. Ellicot Creek, NY
9. Newark, OH
10. Virginia Beach Streams Canal No. Two, VA

Multiple Purpose:

Snettisham, AK

Navigation:

1. Savannah Harbor, GA
2. Jonesport Harbor, ME
3. Moriches Inlet, NY
4. Lynnhaven Inlet and Connecting Channels, VA

Dam Safety:

1. Bolivar Dam, Muskingum River Lakes, OH
2. Buffalo Bayou & Tributaries--Addicks & Barker Dams, TX

PRECONSTRUCTION ENGINEERING AND DESIGN PROJECTS SCHEDULED TO BE COMPLETED WITH FISCAL YEAR 1990 APPROPRIATIONS

Flood Control:

1. West Memphis and Vicinity, AR (MR&T)
2. Clifton, AZ
3. Cache Creek Basin (Outlet Channel), CA
4. Guadalupe River, CA
5. Washington, D.C., and Vicinity
6. Alenaio Stream, HI
7. Brush Creek, Kansas City, MO
8. Brunswick County Beaches, NC
9. Abiquiu Dam (Emergency Gates), NM
10. Harris Fork Creek, TN and KY (MR&T)
11. Roanoke River Upper Basin, VA

Navigation:

1. Noyo River and Harbor (Breakwater), CA
2. Redondo Beach (King Harbor), CA
3. Tampa Bay (Port Sutton), FL
4. Kawaihae Small Boat Harbor, HI
5. Duluth-Superior Harbor, MN and WI
6. Pascagoula Harbor, MS
7. Delaware River Vicinity of Camden, NJ (Beckett St. Terminal)
8. New York Harbor and Adjacent Channels, Port Jersey (Deepening)
9. Lorain Harbor, OH

CONTINUING CONSTRUCTION PROJECTS SCHEDULED TO BE COMPLETED WITH FISCAL YEAR 1990 APPROPRIATIONS

Flood Control:

1. Fort Toulouse, AL
2. Mound State Park, AL
3. Hansen Dam, CA
4. Fountain Creek, Pueblo, CO
5. Chatfield Lake, CO
6. Satilla River Basin, GA
7. Clinton, IA (Deficiency Correction)
8. Harrisonville and Ivy Landing Levee District No. 2, IL
9. South Quincy Levee and Drainage District, IL
10. Trimble Wildlife Area, Smithville Lake, MO
11. B. Everett Jordan Dam and Lake, NC
12. Hamlet City Lake, NC
13. Puerco River at Gallup, NM

Navigation:

1. St. Paul Harbor, AK
2. Buffalo Small Boat Harbor, NY

Dam Safety:

Cooper River Seismic Modification, SC

PRECONSTRUCTION ENGINEERING AND DESIGN PROJECTS SCHEDULED TO BE COMPLETED WITH FUNDS IN FISCAL YEAR 1991 BUDGET

Beach Erosion:

1. Indiana Shoreline Erosion, IN
2. Atlantic Coast of NYC, Rockaway Inlet to Norton Point, NY (1988 Act)

Flood Control:

1. Nogales Wash, AZ
2. Coyote & Berryessa Creeks, CA
3. West Des Moines-Des Moines, IA
4. Little Wood River, Vicinity of Gooding and Shoshone, ID
5. South Frankfort, KY
6. St. Paul, MN
7. River Des Peres, MO
8. Rio Grande Floodway, San Acacia to Bosque Del Apache, NM
9. Truckee Meadows, NV
10. Fairfield, OH
11. Fry Creeks, Bixby, OK
12. Rio Puerto Nuevo, PR
13. Upper Jordan River, UT
14. Centralia, WA
15. Chehalis River, WA (South Aberdeen, Cosmopolis)
16. Portage, WI

Navigation:

1. Bayou La Batre, AL
2. Kodiak Harbor, AK
3. Canaveral Harbor, Sand Bypass, FL
4. Missouri River F&WL Mitigation, IA, NE, KS & MO
5. Olmsted Locks & Dam, IL & KY
6. Wilmington Harbor - Northeast Cape Fear River, NC
7. Olcott Harbor, NY
8. Brazos Island Harbor, TX (42-Foot Project)
9. Channel to Victoria, TX

CONTINUING CONSTRUCTION PROJECTS SCHEDULED TO BE COMPLETED
WITH FUNDS IN FISCAL YEAR 1991 BUDGET

Flood Control:

1. Pajaro River, CA
2. Walnut Creek, CA
3. Westerly Creek, CO
4. North Branch Chicago River, IL
5. Rio Grande Floodway - Truth or Consequences Unit, NM
6. Turtle Creek, PA
7. Little Dell Lake, UT
8. Boggy Creek, Austin, TX
9. Texas City and Vicinity, TX

Navigation:

Hempstead Harbor, NY

FISCAL YEAR 1989 CORPS REVENUES

Mr. BEVILL. Provide for the record a list showing total revenues generated by Corps projects and programs in fiscal year 1989 indicating where the funds are deposited and how they are used.

General HATCH. We will provide that list. All such revenues were returned to the Treasury, and were available to the Corps as offsetting receipts or appropriations in fiscal year 1989 or future years, unless otherwise noted.

(The information follows:)

FISCAL YEAR 1989 REVENUES GENERATED BY CORPS CIVIL WORKS PROJECTS AND RETURNED TO THE TREASURY

Headwater benefits 1/ 4/	$ 4,566,671
Allocated by power marketing agencies 2/ 6/	377,240,972
Miscellaneous fees for regulatory and judicial services, NOC 6/	1,091,628
Fines, penalties, and forfeitures, customs, commerce and antitrust law 6/	126
Forfeitures of unclaimed money and property 6/	1,859
Fines, penalties and forfeitures, NOC 6/	382,828
Gifts to the United States, NOC 6/	18
General Fund Proprietary Interest, NOC	13,627,434
General Fund Proprietary Receipts, All Other, NOC	29,917,774
Special Recreation Use Fees 5/	15,589,161
Hydraulic mining in California, tax, debris reservoirs 1/	48,000
Hydraulic mining in California, water storage and use of facilities, debris reservoirs	100,000
Lease of land acquired for flood control, navigation and allied purposes 1/ 3/	5,889,658
Inland Waterways Trust Fund 7/ 8/	73,058,479
Harbor Maintenance Trust Fund 7/ 9/	183,149,234
Gross total revenues, fiscal year 1989	$704,663,842
Budget clearing account	-18,934,914
Net total revenues, fiscal year 1989	$685,728,928

1/ Permanent Appropriation, warranted to Corps the year following collection.
2/ Revenues for power generation includes only those amounts that marketing agencies have allocated to Corps projects.
3/ This amount is 75 percent of funds collected and is returned to States in lieu of taxes.
4/ Is appropriated under the account title Maintenance and Operation of Dams.
5/ This amount plus Special Recreation Use Fees collections unappropriated from prior years are included in $19,720,000 warranted to the Corps in FY 1990 for Operation and Maintenance of Recreation areas.
6/ Is not available to be appropriated and is not accounted for as an offsetting receipt.
7/ Is not accounted for as an offsetting receipt.
8/ Includes $14,823,225 interest on investments.
9/ Includes $7,290,622 interest on investments.

NOC - Not Otherwise Classified.

ANNUAL FLOOD DAMAGE REPORT

Mr. BEVILL. Provide for the record the annual flood damage report.

General HATCH. Yes.

(The information follows:)

SEVENTH ANNUAL FLOOD DAMAGE REPORT TO CONGRESS FOR FISCAL YEAR 1989

Prepared by the
U.S. Army Corps of Engineers
in Cooperation with the
Office of Hydrology
National Weather Serivce

U.S. ARMY CORPS OF ENGINEERS ANNUAL FLOOD DAMAGE REPORT FOR FISCAL YEAR 1989

INTRODUCTION AND AUTHORITY

This report provides information on storm events and associated damages and is published annually in response to the House Committee Report 98-217, Energy and Water Development Appropriation Act of 1984. The report includes data on flood damages prevented by U. S. Army Corps of Engineers (Corps) controlled projects, flood damages suffered and loss of life. Assessments of damages resulting from other natural disasters are also included. Because of the general nature of the subject and the rapid compilation of the preliminary data estimates, the report is not intended to replace subsequent studies or expected to be used for detailed research. The data provided represents preliminary estimates available at the end of the fiscal year (FY) and may not be complete. They are intended to provide a broad picture of storm events and the positive impact Corps activities and Corps controlled projects are having on the nation.

FLOOD DAMAGES PREVENTED

During FY 1989, Corps projects and emergency activities prevented an estimated $8.3 billion in flood damages, or 88 percent of the potential damage. Types of flood control projects providing protection include dams, levees, flood walls, pump stations and channel improvements. Emergency activities include technical assistance, materials and construction. For the third consecutive year the total damages prevented for the fiscal year is below the 10-year (1979-1988) average of $11.8 billion. Figure 1 shows the flood damages prevented for the past 10 years; Figure 2, the flood damages suffered, and Figure 3, the potential flood damages without Federal projects. Figures 4-6 show, by state, the per capita flood damages prevented, flood damages suffered, and potential flood damages for FY 89, respectively. The decline in both flood losses and losses prevented reflect the drought conditions that gripped the nation in 1987 and 1988 and that continued into 1989. The Midwest and Southwest continue to be in drought. The record for flood damages prevented was set in FY 86 when $27.3 billion in damages were prevented. Estimates of damages prevented in previous years are not adjusted for inflation. Table 1 summarizes FY 89 flood damages prevented, major floods and damages suffered, and the other major weather events and damages.

FLOOD DAMAGES PREVENTED BY CORPS PROJECTS

In FY 89, Corps flood control works prevented an estimated $8.2 billion in damages. Projects were particularly effective in preventing flood damages in parts of Texas, Louisiana, Mississippi, Arkansas and Oregon on a per capita basis (see Figure 4 and Table 2). A major rain event struck north Texas and western Louisiana in mid-May dropping up to 13 inches of rain south of Fort Worth, Texas. As a result, the West Fork of the Trinity River rose rapidly. All flood control reservoirs in the area were filled or nearly filled to capacity. The detention structures captured a large part of the runoff volume and significantly reduced flooding. Three lakes (Benbrook on the Clear Fork of the Trinity River, Arlington on Village Creek, and Joe Pool on Mountain Creek) filled and were required to use their emergency spillways. Despite the reduction in river flow provided by flood control reservoirs, the Trinity River crest was the fifth highest at Fort Worth since record keeping began in the 1890's. One month later a similar major flood hit almost the same area in Texas. Again, every reservoir filled or nearly filled to capacity. For the first time four reservoirs (Benbrook, Grapevine, Lavon, and Lewisville) simultaneously used their emergency spillways. In January a major storm struck the upper Willamette River basin in Oregon. The six Corps reservoir and levee systems operated so well that no flood damages occurred; over half a billion dollars in flood damages were prevented.

FLOOD DAMAGES PREVENTED BY CORPS EMERGENCY RESPONSE ACTIVITIES

Emergency Corps activities are credited with preventing $28,792,000 in flood damages. See Table 2 for a state-by-state distribution. When near record flooding developed along the Red River of the North in April, the Corps constructed temporary levees and strengthened existing flood control projects. This dramatically reduced flood damages in North Dakota and Minnesota. Technical assistance was provided for two other floods. One occurred in late winter and early spring in eastern Arkansas, southern Missouri, and parts of Tennessee and Kentucky. The other occurred in June and July when widespread heavy flooding spread from Texas to the Ohio River Valley (Tropical Storm Allison, see below). In June both flood-fighting materials and significant technical assistance were provided to south Texas to combat flooding. Unfortunately the near record flooding and the long duration of the flooding minimized the effectiveness of the state and local flood-fighting efforts.

Hurricane Hugo crossed the Caribbean Sea leaving devastation in its wake in the Virgin Islands and Puerto Rico before slamming into the United States mainland at Charleston, South Carolina, causing billions of dollars in losses. Emergency assistance under the Corps authority was limited. The most significant direct Corps effort was the

hauling of drinking water to stricken areas in Puerto Rico. The Corps is heavily involved in the support of the massive recovery effort directed by the Federal Emergency Management Agency under its authority.

FLOOD DAMAGES SUFFERED

The estimated total flood damages for FY 89 is $1.1 billion, more than in 1988, but considerably less than the 10-year average (1979-1988) of $2.4 billion (see Figure 2). Damages are not adjusted for inflation. A state-by-state listing is given in Table 3. Flood related fatalities totaled only 72, well below the long term (1925-1988) average of 95. Three consecutive years of abnormally dry conditions have contributed to the recent decline in flood losses. The year was wetter than FY 88 which saw severe drought gripping major portions of the United States. While the east was abnormally wet, major areas in the west are still suffering from drought conditions. Generally, areas east of the Mississippi (except for southern Florida) and portions of eastern Texas and most of Louisiana experienced prolonged wetter-than-normal conditions at various times since late last winter. Flood events leading to major losses are described in the following paragraphs and the most significant are summarized in Table 1.

January 1989

The first major flood event to occur was eight minutes into the New Year (1989). Shortly after midnight (Mountain Standard Time) on New Year's Eve, the dike adjacent to the Quail Creek Dam, located in southwestern Utah near the community of Hurricane, gave way releasing a large volume of water into the Virgin River. The dike failure was not weather related. No fatalities were reported, but damage was estimated to be at least 12 million dollars. Most of the losses were agricultural, including livestock, farm equipment and buildings. At least 1,500 people were forced to evacuate their residences as a result of the flooding.

February 1989

Widespread flooding took place in the Ohio, Tennessee and lower Mississippi River basins during the period February 13-16, 1989. A nearly stationary frontal system caused intermittent periods of heavy rain throughout this large area. Hardest hit during this event was Kentucky, where several rivers had record flooding. This flood event claimed five lives, four in Kentucky and one in Tennessee. Rain during this period was over eight inches in many areas, while one location recorded almost 12 inches. Total damage from this flooding was estimated to be in the millions of dollars.

April 1989

The most significant single flood-related event involving loss of life during FY 89 occurred on April 1, 1989 in Tennessee. A bridge over the Rialto River near Hatchie collapsed and eight people perished. The river was only 3.2 feet above flood stage (at Hatchie) at the time of the collapse. The failure was apparently due primarily to scouring of the bridge supports. Total property damage was estimated at over five million dollars.

May 1989

Four people died in flash flooding in north Texas (Dallas/Fort Worth area) on May 4-5, 1989. The flooding was caused by severe thunderstorms which formed over the region and then moved eastward into Louisiana. Many reports of severe weather, including tornadoes, hail and damaging winds accompanied the flash flooding. Damage from just the flash flooding in north Texas was termed extensive (at least one million dollars).

The mid-Atlantic region was hit by flooding during the period May 5-13, 1989. The flooding was caused by a very slow-moving storm system which tracked up the Appalachian Mountains. Widespread small stream flooding occurred from the Carolinas to New England. A total of seven people lost their lives as a result of this flooding episode, five in Virginia and two in Maryland. Total damages were estimated at around 20 million dollars.

Severe weather and flash flooding struck portions of Texas and Louisiana again during the period May 16-20, 1989. The number of lives lost just as a result of flooding was 11, six of them occurring in Texas and five in Louisiana. The Dallas/Fort Worth area was again hit hard with flash flooding (as it was earlier in the month), and five of the six flood-related deaths occurred in this area. As much as 16 inches of rain fell over isolated locations in eastern Texas and western Louisiana related to these thunderstorms. Damage from the flooding alone was estimated to be over 10 million dollars.

A slow-moving frontal system caused heavy thunderstorms across portions of Indiana and Ohio during the period May 25-26, 1989. As a result, flash flooding occurred in both states, causing four deaths (Ohio) and at least 50 million dollars in damage. Two of the deaths were the result of a bridge collapse, which spanned the Great Miami River at Miamitown, Ohio.

June 1989

Flooding hit a large portion of the eastern United States during the period June 12-23, 1989. Slow-moving thunderstorms occurred throughout much of this region nearly every day during this period, resulting in widespread localized flooding from the panhandle of Florida north and east into western New York. One death resulted from the flooding (Pennsylvania), and damage was estimated to be in the millions of dollars.

By far the most significant flood-producing weather event was Tropical Storm Allison, which caused severe losses in Texas and Louisiana late in June of 1989 (see discussion in section on Tropical Cyclones later in this report). In Texas, Allison caused some 300 million dollars in damages and took three lives. In Louisiana, property damages exceeded 100 million dollars and another three people lost their lives due to flooding. In addition, it is estimated that the rainfall associated with Allison, combined with an already extremely wet spring, caused agricultural losses of at least 200 million dollars in the three-state area including Texas, Louisiana and Mississippi. Half of this damage amount has been attributed directly to Allison. The agricultural losses were due to both direct crop loss and the inability to plant in saturated farmlands.

July 1989

The final major flood event of FY 89 was again in the mid-Atlantic region during the period July 3-5, 1989. Much of the rainfall in this episode was due to remnant moisture from former Tropical Storm Allison. Heavy rains occurred throughout a widespread area from the Carolinas north and eastward to New Jersey. At least seven deaths resulted from the flooding (three in Delaware, two in North Carolina and two in New Jersey). Damage estimates were placed well into the millions.

September 1989

Hurricane Hugo (September 10-22, 1989) cut a wide swath of devastation through the Caribbean, South Carolina and into the Appalachians. Most of the deaths and damages in South Carolina were due to the effects of the high winds and the very high (up to 18 feet above mean sea level) storm surge. The height of the surge was accentuated because the timing of landfall coincided with high tide. Heavy rainfall, which was short in duration, produced only minor flooding. For more details concerning Hugo, see the section on Tropical Cyclones later in this report.

LOW FLOWS IN THE MISSISSIPPI RIVER DRAINAGE IN 1989

The nation's midsection has not recovered from FY 87 and FY 88 when some of the lowest river levels observed in the past 50 years were recorded on the Mississippi River system. Flows in the Missouri River continued to be sustained by water released from the Corps six mainstem storage reservoirs and played a major role in keeping the Lower Missouri River navigable. The annual runoff from the basin averaged only 85 percent of normal runoff in 1987, 50 percent in 1988, and 72 percent in 1989. Despite these successive dry years, water released from reservoirs allowed navigation on the Missouri River to continue throughout the summer. The Missouri contributed more than 60 percent of the flow in the Mississippi River at St. Louis during most of the summer and fall, and the mainstem Missouri River reservoir releases provided 75 percent of that contribution. Without the flow contribution from those reservoirs, the middle reach of the Mississippi River (from the confluence of the Missouri River near St. Louis to the confluence of the Ohio River near Cairo) would have been closed to navigation during low flow periods in the summer and fall. The economic impact of such closures would have been major.

Reservoir storage is being depleted. Storage in the Missouri River mainstem reservoir system dropped to 45.3 million acre feet (MAF) on March 1, 1989, the lowest point since the reservoirs were filled. March first is the beginning of the runoff season and is about the lowest storage time of the year. The forecast is for an even lower record breaking storage for March 1, 1990. Long range studies indicate that it would take more than six successive years of average reservoir inflow to refill the system reservoirs to the top of their depleted multipurpose storage zones.

The upper Mississippi River also experienced low flows, but not as severe as in 1988. The Ohio River system, a major contributor to the lower Mississippi River, experienced near normal flows which together with reservoir-augmented flows from the Missouri River maintained adequate navigation depths on the lower Mississippi River through the end of the fiscal year.

DROUGHT

The 1987-1988 drought continued in parts of the west, but is gone in the east. Abnormally high precipitation has been widespread throughout much of the eastern portion of the United States since spring, eliminating water supply concerns in this part of the country. East of the Mississippi River, only the southern part of Florida is faced with drought conditions and water supply problems. While portions of the mid-west have received beneficial precipitation since the severe drought conditions of 1988, many areas west of the Mississippi are still facing serious problems, the most significant of which are highlighted below.

California

Reservoir levels are especially low in central California: levels are lower than the 1977 record along the central coast and are approaching 1977 levels in the Tulare Lake basin. Storage in the state's largest reservoirs averaged 119 percent of normal on October 1, 1986. Since then, it dropped to 85 percent of normal in 1987, 63 percent of normal in 1988 and 73 percent of normal on October 1, 1989.

Hardest hit drought areas continue to be the east and south San Francisco Bay region, and a number of communities in the San Joaquin Valley. Over 130 communities with a total population of over 10 million people have reported water shortages or implemented drought-related water conservation measures. At the end of FY 89, five counties (Glenn, Kings, Madera, Mendocino and San Joaquin) were under drought emergencies. At the same time last year, 14 counties had declared emergencies. Conditions in southern California are also extremely dry (the driest station for the water year was Santa Barbara, with only 34 percent of normal precipitation), however, a substantial part of the water supply to this region comes from reservoirs on the Colorado River which have been able thus far to provide the needed quantity of water.

While unseasonable late summer rains in the northern and central parts of the state did bring some improvement in surface soil conditions, without considerable additional rainfall this is likely to be a short-term change. Deep soil moisture, along with reservoir levels, remain much below average. Over the past three years, groundwater storage was severely depleted in certain areas, significantly lowering water tables. Although not immediately obvious, the deep storage deficits could lead to serious problems.

Nevada, Utah, and Arizona

The April through September period was hotter and drier than normal for much of this area. Streamflow was considerably less than normal. Storage in much of Nevada was seriously low. Of particular concern, Lake Tahoe remains much below normal. According to the Soil Conservation Service (U.S. Dept. of Agriculture), at least four cities in Utah did not have enough water for household use this past year. On Utah's Ogden River, water was supplied only to water rights established prior to 1858. Also according to the Soil Conservation Service, water storage in major reservoirs of Arizona was adequate during the summer of 1989. However, storage in many reservoirs is much lower than it has been for several years.

Large reservoir systems, especially along the Colorado River, have adequate storage to meet water needs. Some smaller reservoirs could not provide a reliable supply of water over the past summer. Pumped groundwater was used in most areas of Arizona and in many other parts of this region. In most areas the supply of groundwater was reliable, but some areas reported shortages. Water tables were lowered significantly.

Texas

While northeastern Texas has experienced extensive flooding throughout the spring and summer, southern Texas has been extremely dry. Occasional late summer/early fall rains have been beneficial, but they have not eliminated serious drought problems. Water tables are quite low and much rain is needed across South Texas to replenish them.

Missouri River Basin

Occasional rains throughout the summer allowed some areas to have moderately successful growing conditions. However, precipitation was not sufficient to alleviate long-term dry conditions. The basin is characterized by deep soil moisture deficits and very low reservoir levels. The major impacts have been to water distribution systems for water supply and irrigation. Water released from reservoir storage provided adequate navigation depths, but the navigation season was shortened by five weeks.

OTHER MAJOR WEATHER EVENTS

Tornadoes

Some 870 tornadoes were reported in FY 89 compared to 696 the previous year (FY 88). This is lower than the six-year (1983-1988) fiscal year average of approximately 985. Tornadoes caused 32 deaths in FY 89, compared to 33 in FY 88. This is lower than the six-year (1983-1988) average of 58. See Table 4 for a state-by-state distribution. The most severe outbreaks, in terms of fatalities and damages, are described in the following paragraphs.

November 1988

November of 1988 will long be remembered for its unusual abundance of severe weather. A total of 121 tornadoes was reported across the contiguous United States for the month, the highest number of tornadoes for any November on record and well above the November average of 23. Many of these tornadoes were concentrated in a few major outbreaks, especially in the south-central United States.

During the first of these outbreaks on November 4-5, 1988, 11 tornadoes occurred in Mississippi, three in both Alabama and Florida and two in Tennessee, for a total of 19. A strong cold front pushing rapidly eastward across the region was responsible for the tornado outbreak, which caused one death in Florida. Close to three million dollars in damage was done throughout the four states affected, most of which (nearly two million dollars) was caused by one very strong tornado in extreme northwestern Alabama.

The largest outbreak of tornadoes in November 1988 started on the 15th and extended into the 16th. A rapidly intensifying storm center (and its associated cold front) which moved northeast from Oklahoma to Minnesota triggered the outbreak. At least 44 tornadoes resulted: 13 in Missouri, eight in Iowa, seven in Arkansas, six in Kansas, five in Illinois, three in Oklahoma and two in Texas. In the seven states affected, the outbreak caused seven deaths and 128 injuries and over 50 million dollars in damage. Six of the deaths occurred in Arkansas, five of them as a result of one strong tornado which skipped across the ground for 43 miles across central Arkansas, causing over 15 million dollars in damage. One death occurred in Missouri, and one of the 13 tornadoes in Missouri caused an estimated 25 million dollars of damage.

Another major outbreak of tornadoes occurred on November 19-20, 1988. Thirteen tornadoes hit Mississippi, four struck Texas, two hit Louisiana, and Alabama and Tennessee were each struck by one tornado, for a total of 21 tornadoes. In the five states affected, the outbreak caused two deaths (Mississippi), 25 injuries and over two million dollars in damage. Most of the damage (1.2 million dollars) occurred in the Alabama tornado.

A strong cold front caused an outbreak of tornadoes over North Carolina and Virginia on November 28, 1988. A total of seven tornadoes were spawned, five in North Carolina and two in Virginia. One of these tornadoes passed directly through Raleigh, North Carolina. This tornado was one of the strongest tornadoes of 1988. The tornado travelled a total distance of nearly 83 miles, making it the longest-tracking tornado of 1988. Four people were killed and at least 154 others were injured, while damage from this tornado alone was estimated at 77.2 million dollars (the second most destructive single tornado of FY 89). The other six tornadoes were much less destructive, causing no deaths and a combined estimated damage of roughly one million dollars.

December 1988

An early morning December 24, 1988 tornado hit Franklin, Tennessee located about 20 miles south of downtown Nashville. Like the Raleigh tornado, it too was one of the three strongest tornadoes of 1988. Carving out a six-mile long path of destruction, this tornado killed one person and injured seven others. The total loss of property due to this tornado was estimated at eight million dollars.

March 1989

A developing storm system (and its associated cold front) tracking northeastward from the central Gulf Coast to off the mid-Atlantic Coast spawned at least 13 tornadoes on March 4-5, 1989. Five tornadoes occurred in Mississippi, while four occurred both in Alabama and Georgia. One person died (Georgia) and another 36 people were injured across the three states affected by this outbreak, and combined damages from all the tornadoes were well over 10 million dollars.

April 1989

A slow-moving cold front pushing eastward spawned at least 30 tornadoes from late on April 2, 1989 through the fifth. Nine tornadoes resulted from this outbreak in Georgia, six in Kentucky, four each in Illinois and South Carolina, three each in Indiana and Mississippi and one in Alabama. No deaths resulted from this outbreak, but at least 13 people were injured and total damage was estimated at close to 20 million dollars. One of the four Illinois tornadoes caused eight million dollars in damage.

A single tornado formed along a nearly stationary frontal system in Ohio on April 25, 1989. No deaths were reported, but 16 people were injured and damage was estimated at over one million dollars. The tornado struck an area northeast of Xenia, where two of the homes damaged by it had also been damaged by the strong Xenia tornado of 1974. The same frontal system caused an outbreak of tornadoes in the states of Indiana and Iowa from April 26-28, 1989. At least 11 tornadoes occurred, 9 of them in Iowa. No deaths resulted from these tornadoes, though two people were injured. Total damage was estimated at over two million dollars, nearly all of the damage occurring in Iowa.

May 1989

A strong cold front produced thunderstorms which spawned at least 27 tornadoes across the Southeast and mid-Atlantic regions from May 4-6, 1989. North Carolina reported 11 tornadoes, but one had its origin in South Carolina. Louisiana reported five, Mississippi and South Carolina each counted three, Georgia and Virginia observed two each and Kentucky had one. This deadly and destructive tornado outbreak was responsible for seven deaths, five of which occurred in North Carolina and the other two in South Carolina. Additionally, at least 169 people were injured by these tornadoes, many of them in North Carolina. Total combined damages which resulted from this outbreak approached 100 million dollars, most of which occurred in North Carolina.

One tornado formed in South Carolina, where it claimed two lives (as stated above) and caused another 35 injuries before crossing the state line and entering North Carolina. This tornado was one of the strongest tornadoes of FY 89 while in South Carolina, then weakened as it moved into North Carolina. In North Carolina, four people died, 52 were injured and damage estimated at nearly six million dollars resulted from another strong tornado (one of FY 89's six strongest). Also in North Carolina, a single tornado caused 30 million dollars damage to numerous airplanes and injured 10 people, while another caused an estimated 15 million dollars of damage. The fifth death in North Carolina related to this outbreak was caused by yet another strong tornado, which, in addition to the fatality, injured six people and did nearly eight million dollars worth of damage. Indeed, May 5, 1989 will be remembered for its severe weather in the mid-Atlantic region, especially in North Carolina, as this was by far the deadliest and one of the most destructive tornado outbreaks of FY 89.

Two weather systems, one following closely behind the other, caused a major tornado outbreak across the Southwest and south-central United States from May 10-19, 1989. During this time period, at least 86 tornadoes occurred related to these two weather systems. Nearly two-thirds of them occurred in Texas, but tornadoes were also reported in Arizona, New Mexico, Colorado, Oklahoma, Kansas, Louisiana, Arkansas, Missouri, Mississippi, Kentucky and Alabama. Only one death (Texas) occurred as a result of this tornado outbreak. Another 47 people were injured, 44 of them in Texas. Total damage in all 12 states was estimated at over 261 million dollars, but an estimated 260 million dollars in damage occurred in a single Texas tornado (the most destructive single tornado in FY 89).

During the period from May 22-26, 1989, a cold front moving eastward across the north-central United States spawned at least 42 tornadoes in nine states, including Nebraska, Wisconsin, Minnesota, Iowa, Missouri, Illinois, Indiana, Kentucky and Ohio. Most (one-half) of the tornadoes were concentrated in Wisconsin, Minnesota and Iowa. No deaths were reported from this outbreak, and only three injuries were reported, all in Iowa. Total damages resulting from this outbreak was at least 12 million dollars, with more than 10 million dollars occurring in Iowa alone due to two tornadoes, each causing an estimated five million dollars in damage.

Tropical Cyclones

There were 11 named tropical cyclones (winds greater than 35 mph) in the North Atlantic Ocean, Caribbean Sea and Gulf of Mexico during FY 89 (see Table 5). This number includes two from the 1988 hurricane season (defined each year as the six-month period from June 1 through November 30), and nine from the 1989 hurricane season. Of the 11, seven reached hurricane strength (winds greater than 74 mph). For comparison, FY 88 had 12 named tropical cyclones, five of which reached hurricane strength; Figure 7 shows the number of tropical cyclones and hurricanes (Atlantic Basin only) over the last 10 years.

Hurricane Hugo (September 10-22, 1989)

Hurricane Hugo was the most significant tropical cyclone and weather event of FY 89. The system began as a cluster of thunderstorms which moved off the coast of Africa on September 9, 1989. It reached tropical storm strength on the 11th, due south of the Cape Verde Islands, and was upgraded to a hurricane on the 13th. Hugo moved west for several days, then gradually turned to the west-northwest, striking the Leeward Islands on the 17th. A day later (18th) the eye of the hurricane passed over the Virgin Island of St. Croix, then later that same day moved across the northeastern portion of Puerto Rico. Hugo's final landfall was on the South Carolina Coast near Charleston at

Sullivans Island, at approximately midnight (EDT) Thursday night, September 21, 1989. The storm continued northwestward while gradually weakening, tracking across North Carolina, western Virginia and West Virginia, and turning northward through eastern Ohio and northwestern Pennsylvania and across Lake Ontario into the province of Ontario, Canada.

Meteorologically, Hugo was a very intense hurricane, designated a "Category 5" hurricane (sustained winds of 155 mph or greater) at its peak. Hugo produced winds of well over 100 mph throughout the islands of the Caribbean, leaving a path of death and destruction across the Leeward Islands, the Virgin Islands and Puerto Rico. Most of the damage in the Caribbean and a substantial portion on the United States mainland resulted from the strong winds. Along the South Carolina Coast, significant damage was also caused by storm surge. Tides were 10-15 feet above mean sea level for a portion of the South Carolina coast, and up to 18 feet above mean sea level immediately to the north of the point of landfall. Hugo produced only minor flood damage because rainfall was generally moderate with a maximum of 8.10 inches reported at Mt. Pleasant, South Carolina (near Charleston).

The National Hurricane Center's most recent casualty statistics give a total of 26 deaths occurring in the United States (three on the Virgin Islands, two in Puerto Rico and 21 on the mainland)[1] as well as 23 on the Leeward Islands. Estimates of damage are currently placed at near two billion dollars for Puerto Rico and the Virgin Islands. The most recent damage estimate is placed at near seven billion dollars for the United States mainland, for a total of some nine billion dollars for the United States and its territories.

Tropical Storm Allison (June 24-27, 1989)

Tropical Storm Allison was the first named tropical cyclone of the 1989 hurricane season. Allison formed in the Gulf of Mexico off the southeast Texas Coast on June 26, from what was previously a weak Pacific hurricane named Cosme. Cosme made landfall near Acapulco, Mexico on June 22, 1989 and weakened while moving north-northeastward across Mexico, where at least 30 people died, mostly as a result of mudslides caused from heavy rains. Allison drifted into the Texas Coast southwest of Freeport late on the 26th, then meandered along the southeast Texas Coast for the next several days as a weakened low pressure system. As a result of the slow motion of the system, extremely heavy rains occurred over portions of Texas, Louisiana and Mississippi. Rainfall associated with Allison ranged up to 22.5 inches at Winnfield, Louisiana over a three-day period. Much of southeastern and eastern Texas as well as

[1] The reporting of deaths associated with any major weather event varies according to the policies and philosophies of the agencies collecting and reporting information. The American Red Cross reported numbers significantly higher than those reported by the National Hurricane Center: 7 deaths in the Virgin Islands, 22 in Puerto Rico and 49 on the U.S. mainland, for a total of 78.

western Louisiana had over 12 inches of rain. At least 11 people died in the United States as a result of Allison. All of the deaths were by drowning, with three deaths occurring in Texas, three in Louisiana and five in Mississippi. Damage as a result of Allison was estimated at over one-half billion dollars, mostly in the form of agricultural losses in the three-state area, as well as property damage due to flooding, particularly in the Houston, Texas area.

Hurricane Chantal (July 30-August 3, 1989)

Hurricane Chantal began as a tropical depression in the central Gulf of Mexico on July 30, 1989. The system reached both tropical storm and hurricane strength a day later on the 31st as it tracked steadily northwestward towards the upper Texas Coast. Chantal made landfall early on August 1, 1989 about 30 miles east of Galveston, Texas. A total of 13 deaths have been attributed to Chantal. Two drownings occurred in Texas, one drowning occurred in Louisiana, and seven confirmed deaths (along with an additional three presumed deaths) occurred when a vessel assisting in the evacuation of a Gulf of Mexico oil rig capsized. Damage has been estimated at 100 million dollars, due mostly to agricultural losses and some property damage as a result of flooding caused by heavy rains. Rainfall totals from Chantal approached a foot in portions of southeast Texas, including 11.15 inches at League City. The highest tide reported as the weak hurricane made landfall was 3.1 feet above mean sea level in Galveston.

Hurricane Gabrielle (August 30-September 13, 1989)

Hurricane Gabrielle first formed south of the Cape Verde Islands on August 30, 1989, reaching tropical storm strength on the 31st. The system was quickly upgraded to a hurricane later that same day. Gabrielle at its peak was a "Category 4" hurricane, with maximum sustained winds of 135 mph. While the hurricane remained off the United States east coast as it travelled northward roughly along the 60 degree meridian, its intensity and large size resulted in very high swells and rough surf conditions along the Eastern Seaboard. These effects were most noticeable along the New England Coast, where, despite widespread publicity and various cautionary advisories, eight known fatalities occurred. All of these fatalities resulted from various accidents/incidents related to the heavy surf caused by the storm.

Tropical Storm Keith (November 17-24, 1988)

Tropical Storm Keith was the final named tropical cyclone of the 1988 hurricane season. Keith originated in the central Caribbean late on November 17, 1988. After brushing the Yucatan Peninsula on the 21st, the storm recurved northeastward, crossing central Florida on the 23rd, before heading out into the open Atlantic. Maximum observed rainfall from the storm was just over 11 inches at Largo, Florida, north of the

storm track. A storm surge of between three and six feet accompanied the storm as it made landfall on the west-central Florida coast. Total United States damage was estimated near three million dollars, all of it occurring in Florida. No deaths were reported.

Other Tropical Cyclones Affecting the United States

Hurricane Dean (July 31-August 9, 1989) grazed the Virgin Islands and Puerto Rico with no deaths or significant damage reported. Tropical Storm Iris (September 16-21, 1989) generally followed part of Hugo's track and dropped substantial rain on the Leeward and Virgin Islands within two days after Hugo. There were no reports of casualties or damage resulting from Iris.

Tropical Cyclones Not Affecting the United States

Hurricane Joan (October 10-23, 1988) reached tropical storm strength on October 11, 1988 in the mid-Atlantic, and from there followed an unusual low-latitude path due west through the extreme southern Caribbean. Joan strengthened to a hurricane on the 18th only 30 nautical miles north of the coast of Colombia, South America. The hurricane hit the southeast coast of Nicaragua near Bluefields early on the 22nd. The storm then crossed Nicaragua and entered the Pacific to be renamed Miriam, but never regained hurricane strength. Joan was a strong hurricane when it moved ashore into Nicaragua, killing an estimated 148 people. The total death count from Joan throughout the south Caribbean was estimated at 216, while the total damage estimate was close to two billion dollars. In addition, at least 270 serious injuries resulted, and an estimated 221,500 people were left homeless. Many of the deaths and damage associated with Joan resulted from mudslides caused by heavy rains.

Tropical Storm Barry (July 9-14, 1989), Hurricane Erin (August 18-26, 1989) and Hurricane Felix (August 25-September 10, 1989) remained over the open waters of the Atlantic and did not significantly affect any land areas as tropical cyclones.

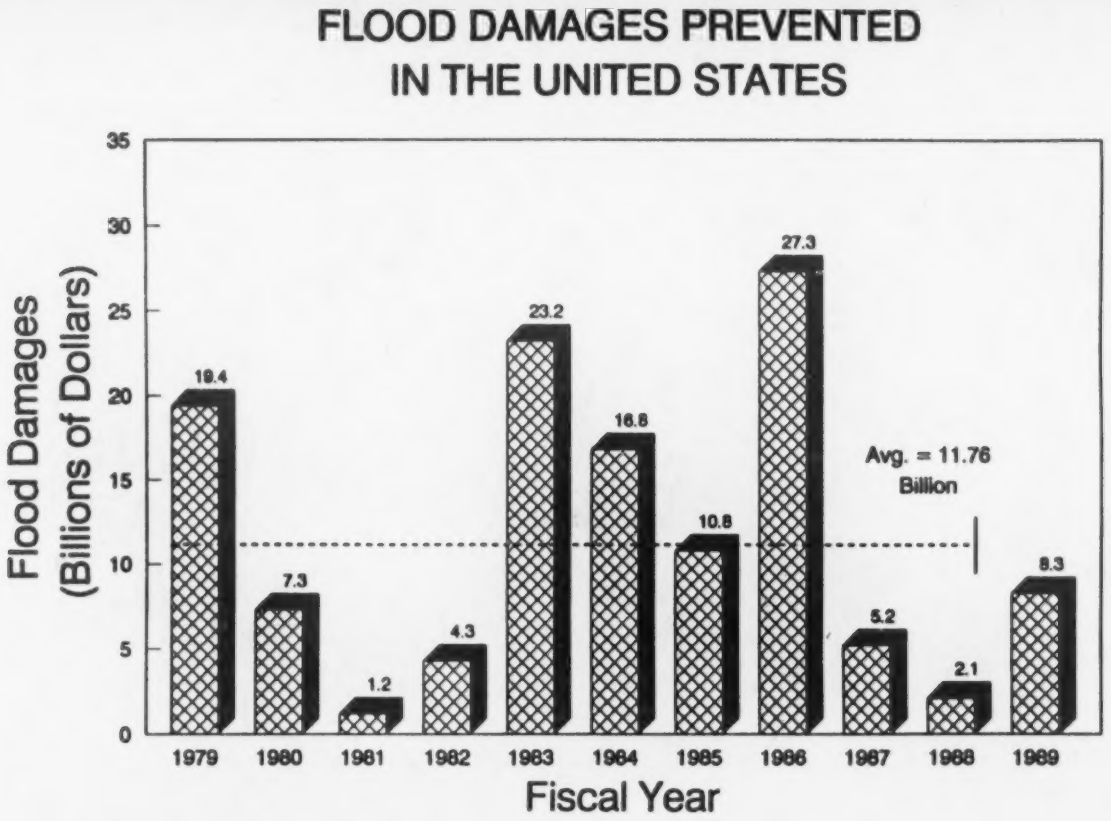

Figure 1. *Flood damages prevented in the United States by the U.S. Army Corps of Engineers since Fiscal Year 1979. The 1979-88 average is also shown for comparison.*

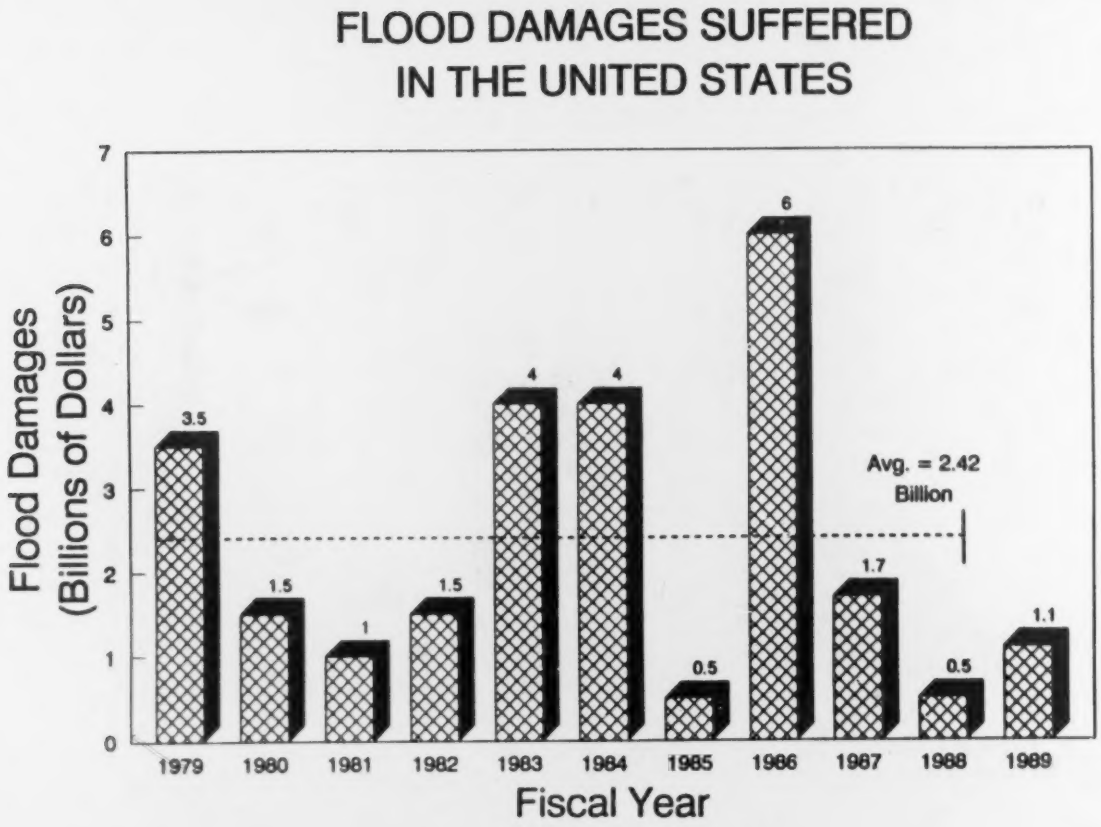

Figure 2. *Flood damages suffered in the United States since Fiscal Year 1979. The 1979-88 average is also shown for comparison.*

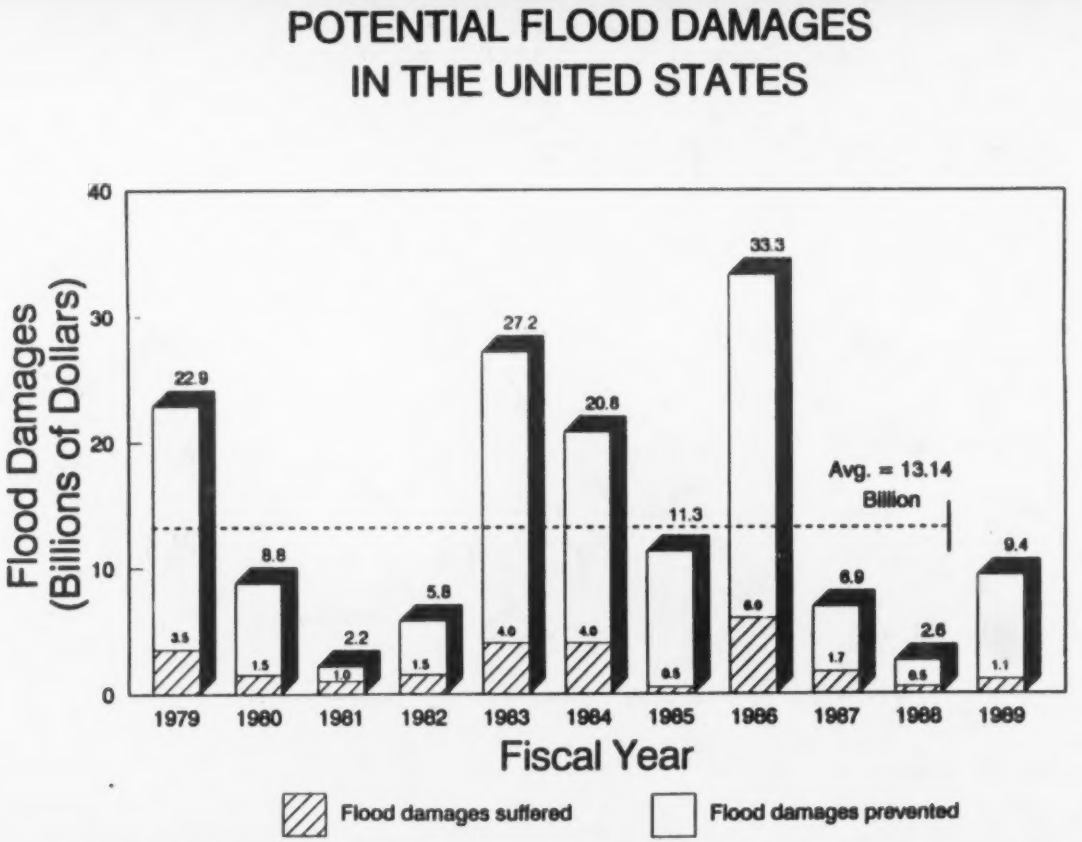

Figure 3. *Potential flood damages in the United States since Fiscal Year 1979. The potential damages for each year is the sum of the damages suffered and the damages prevented. The 1979-88 average is shown for comparison.*

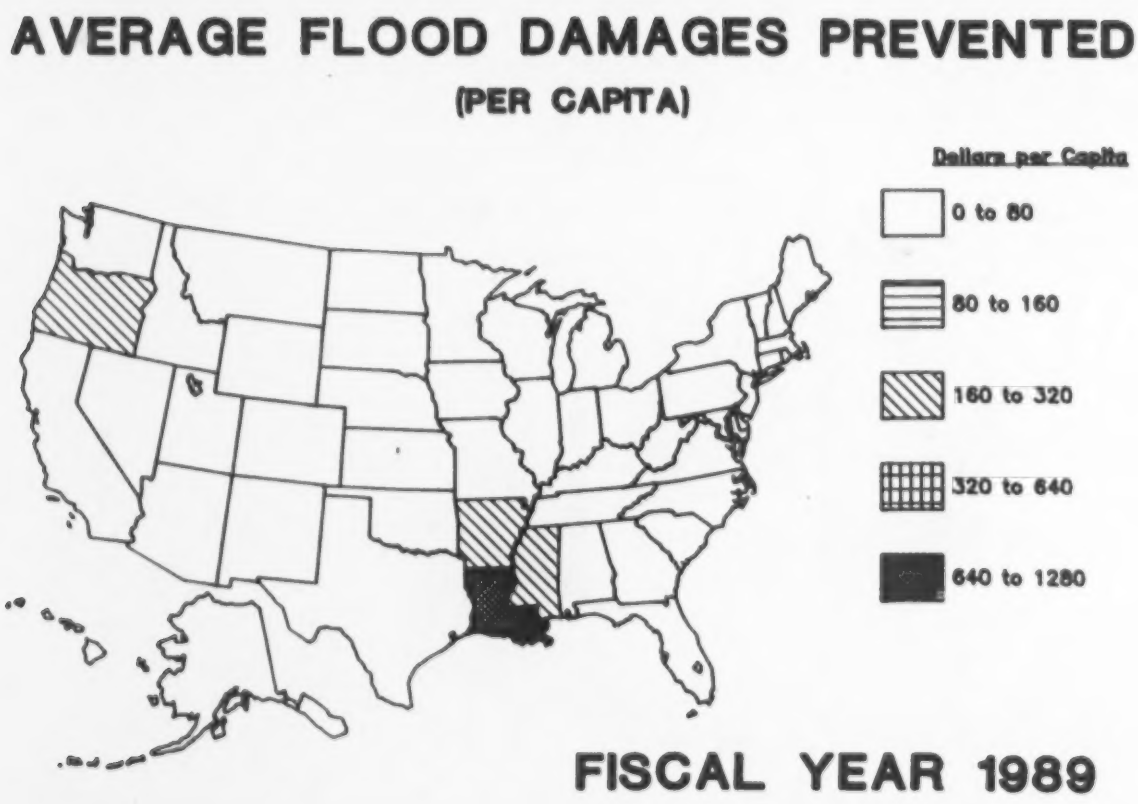

Figure 4. *Average per capita flood damages prevented by the U.S. Army Corps of Engineers (by state) in the United States during Fiscal Year 1989.*

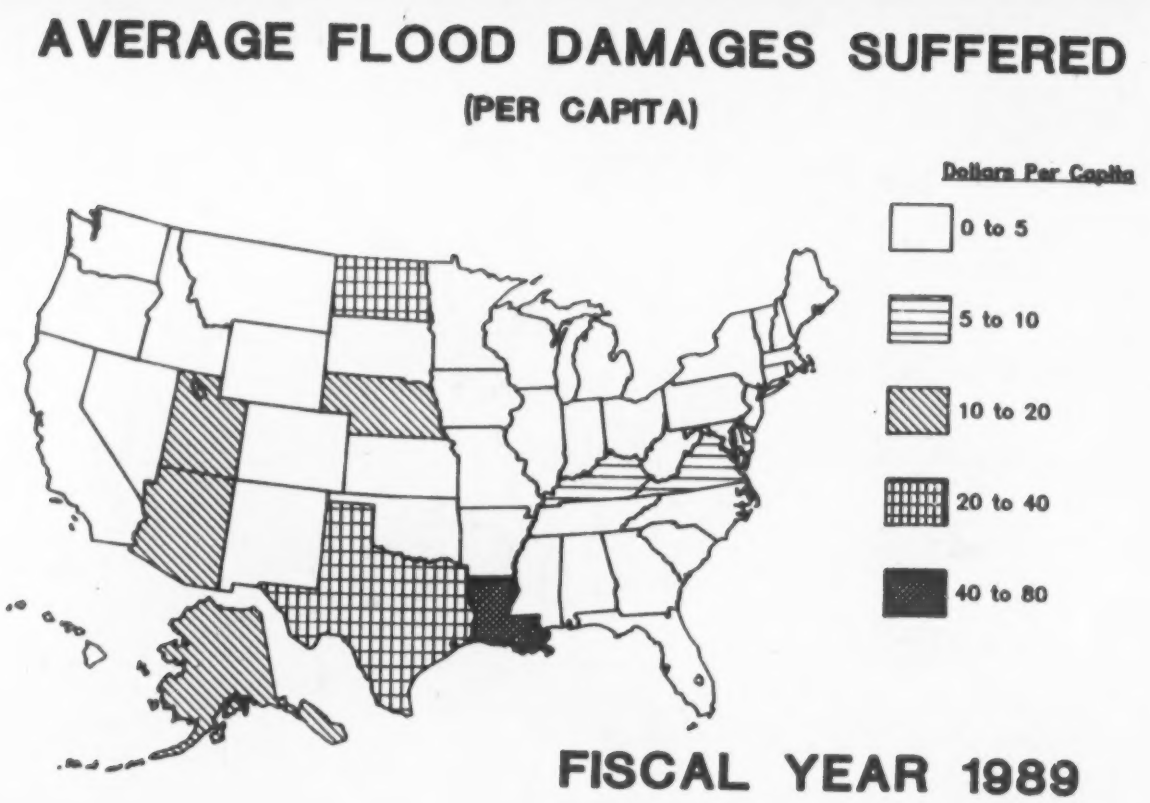

Figure 5. *Average per capita flood damages suffered (by state) in the United States during Fiscal Year 1989.*

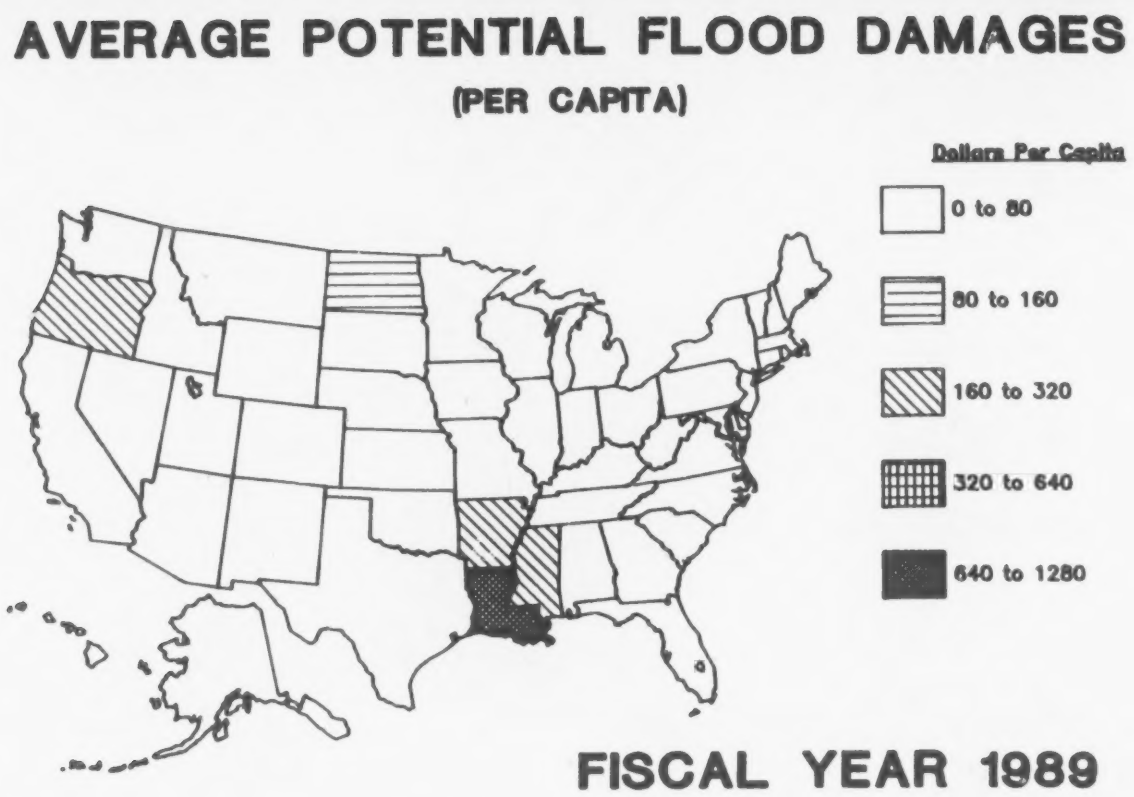

Figure 6. *Average per capita potential flood damages (by state) in the United States during Fiscal Year 1989.*

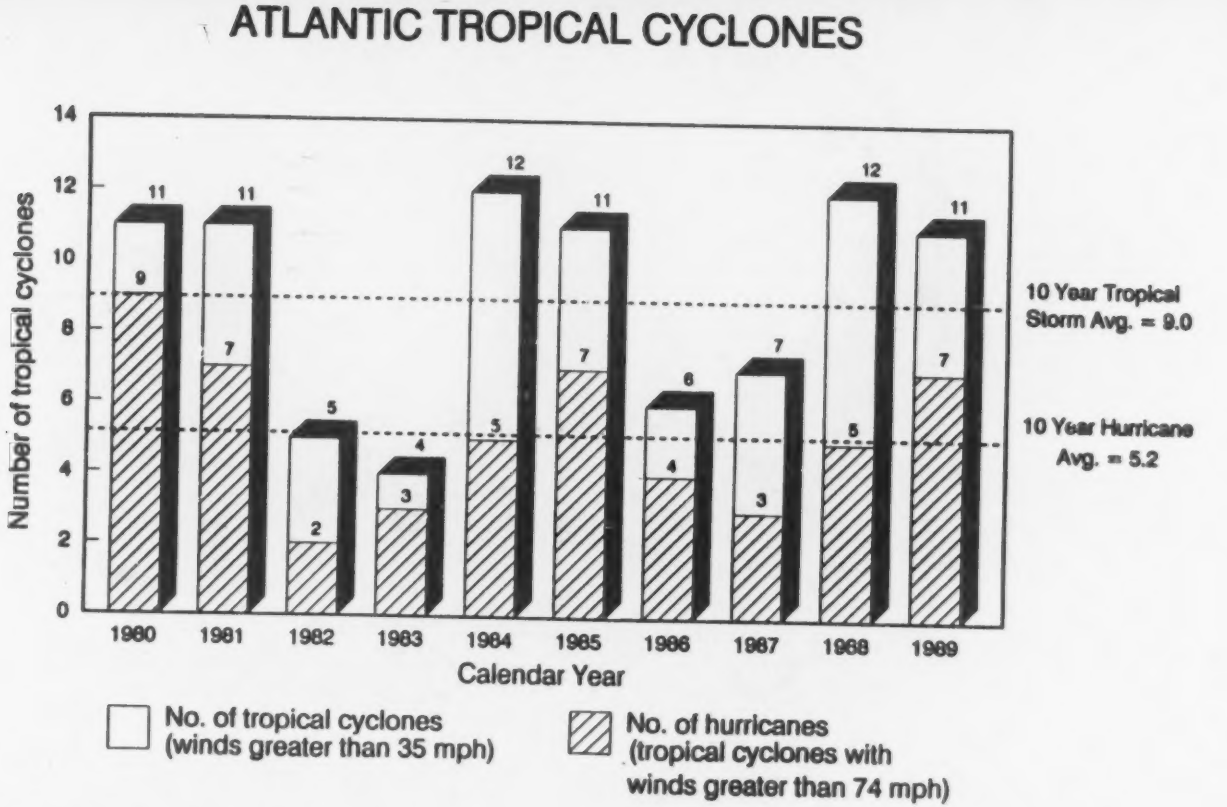

Figure 7. *Number of tropical cyclones since Fiscal Year 1979. The 1979-88 hurricane and tropical cyclone averages are also shown for comparison.*

Table 1(a). *Flood damages prevented by the U.S. Army Corps of Engineers during Fiscal Year 1989.*

Region	Damages Prevented (millions of dollars)
New England	0.3
Mid-Atlantic	24.8
Gulf and South Atlantic	30.0
Ohio	285.5
Tennessee	16.2
Great Lakes	25.0
Upper Mississippi	6.8
Souris-Red-Rainy	68.8
Missouri	176.1
Arkansas-Red-White	186.7
Lower Mississippi	5,970.2
Rio Grande	2.8
Texas and Gulf	535.7
Colorado	0
Great Basin	0.5
California	4.8
Columbia-North Pacific	918.9
Alaska	8.0
Hawaii	0.1
TOTAL	8,261.2

Table 1(b). *Major floods during Fiscal Year 1989 and their impacts.*

Month	Location	Lives Lost	Damages Suffered (millions of dollars)
January 1989	Utah	0	12
February 1989	Ohio, Tennessee, and Lower Mississippi Valleys	5	*
April 1989	Tennessee	5	5
May 1989	Texas	4	Extensive (Flash Floods)*
May 1989	Virginia, Maryland, and District of Columbia	7	20
May 1989	Texas, Louisiana, and Mississippi	11	100
June 1989	Eastern United States	1	*
June 1989	Texas, Louisiana	11	500
June 1989	Mid-Atlantic	7	*
SUBTOTALS		54	More than 640
TOTALS (All floods in U.S.)		72	1,100

* Exact dollar amount not known, but damages are in the millions

Table 1(c). *Other major weather events during Fiscal Year 1989 and their impacts.*

Event	Number	Total Lives Lost	Damages Suffered (millions of dollars)
Tropical Cyclones	11	58	9.8
Tornadoes	870	32	0.6
Drought	1	-	-
Blizzards Winter Storms	2	20	0.1
TOTALS	884	110	10.3

Table 2. *Flood damages prevented (in thousands of dollars) during Fiscal Year 1989 by the U.S. Army Corps of Engineers.*

Location	Damages Prevented by Corps-Controlled Projects	Damages Prevented by Corps-Controlled Emergency Operations	Total Flood Damages Prevented by the Corps of Engineers
Alabama	0	0	0
Alaska	8,000	0	8,000
Arizona	6	0	0
Arkansas	401,361	435	401,796
California	4,770	0	4,770
Colorado	0	0	0
Connecticut	1,892	0	1,892
Delaware	0	0	0
Florida	456	0	456
Georgia	850	0	850
Hawaii and Guam	82	0	82
Idaho	14,900	0	14,900
Illinois	7,926	0	7,926
Indiana	56,146	5,000	61,146
Iowa	76	0	76
Kansas	106,716	0	106,716
Kentucky	96,767	0	96,767
Louisiana	6,007,949	0	6,007,949
Maine	0	0	0
Maryland District of Columbia	3	0	3
Massachusetts	237	0	237
Michigan	3,664	0	3,664
Minnesota	14,999	7,006	21,995
Mississippi	649,886	0	649,886
Missouri	117,726	0	117,726
Montana	27	0	27
Nebraska	17,427	0	17,427
Nevada	0	0	0
New Hampshire	0	0	0
New Jersey	3,336	0	3,336
New Mexico	2,766	0	2,766
New York	38,667	0	38,667
North Carolina	18,362	0	18,362
North Dakota	30,808	16,323	47,131
Ohio	89,977	0	89,977
Oklahoma	123,272	0	123,272
Oregon	640,766	0	640,766
Pennsylvania	27,646	0	27,646
Rhode Island	0	0	0
South Carolina	1,434	0	1,434
South Dakota	457	0	457
Tennessee	9,651	0	9,651
Texas	537,403	0	537,403
Utah	800	0	800
Vermont	2,268	0	2,268
Virginia	11,243	0	11,243
Washington	62,403	0	62,403
West Virginia	18,592	0	18,592
Wisconsin	0	0	0
Wyoming	751	25	776
Puerto Rico and Virgin Islands	0	0	0
TOTAL	9,232,186	28,792	9,260,978

Table 3. *Flood damages suffered (in thousands of dollars) during Fiscal Year 1989.*

Location	Lives Lost	Property Damage	Agricultural Losses
Alabama	0	178	**
Alaska	0	8,000	**
Arizona	2	32,020	1,616
Arkansas	4	2,320	**
California	0	36,638	3,200
Colorado	0	481	**
Connecticut	0	800	**
Delaware	3	1,600	**
Florida	0	2,109	**
Georgia	0	1,782	**
Hawaii and Guam	1	3,382	**
Idaho	0	178	**
Illinois	0	*	1,600
Indiana	0	718	**
Iowa	0	3,731	3,656
Kansas	2	907	2,487
Kentucky	4	27,401	44
Louisiana	2	122,118	200,000
Maine	0	3,200	**
Maryland and District of Columbia	6	1,600	**
Massachusetts	0	*	**
Michigan	0	178	2
Minnesota	0	17,600	**
Mississippi	2	3,636	**
Missouri	1	19,087	**
Montana	1	2,000	194
Nebraska	0	21,642	8,130
Nevada	0	23	**
New Hampshire	0	*	**
New Jersey	2	1,600	**
New Mexico	0	3,378	**
New York	0	22,109	16,162
North Carolina	4	19,120	1,982
North Dakota	0	16,000	**
Ohio	4	62,240	**
Oklahoma	1	2,121	**
Oregon	0	82	16
Pennsylvania	1	7,109	**
Rhode Island	0	*	**
South Carolina	0	370	**
South Dakota	0	16	**
Tennessee	9	11,488	16
Texas	18	340,746	382
Utah	0	16,387	16
Vermont	0	80	**
Virginia	6	21,312	16,081
Washington	0	320	**
West Virginia	0	1,010	**
Wisconsin	0	160	**
Wyoming	0	1,602	**
Puerto Rico and Virgin Islands	0	*	**
TOTAL	72	823,421	267,393
TOTAL LOSSES (PROPERTY AND AGRICULTURAL)			1.1 BILLION

1 This table summarizes estimated values for flood events. Damage totals for major floods, especially those that occurred at the end of fiscal year, are frequently not well-refined in time for inclusion in this report. Lesser floods are not always consistently reported. These data are representative of state-by-state distribution of total flood damages, but may not represent the final loss value for each state.

* Property damages unavailable, but flooding occurred in most states – damages likely to be modest.

** Agricultural losses unavailable.

Table 4. *Distribution of tornadoes in the United States and their effects during Fiscal Year 1989.*

Location	Number of Tornadoes	Lives Lost	Damages Incurred [1] (thousands of dollars)
Alabama	19	0	9,782
Alaska	0	0	0
Arizona	1	0	5
Arkansas	23	6	20,295
California	2	0	1
Colorado	20	0	141
Connecticut	0	0	0
Delaware	2	0	2,000
Florida	69	4	18,278
Georgia	24	1	13,348
Hawaii	0	0	0
Idaho	4	0	5
Illinois	19	0	6,766
Indiana	29	0	9,236
Iowa	37	0	11,640
Kansas	34	0	4,426
Kentucky	17	0	2,710
Louisiana	57	2	2,827
Maine	1	0	50
Maryland District of Columbia	0	0	0
Massachusetts	0	0	0
Michigan	8	2	161
Minnesota	11	0	250
Mississippi	90	2	6,966
Missouri	23	1	34,150
Montana	7	0	50
Nebraska	41	0	1,655
Nevada	3	0	1,000
New Hampshire	0	0	0
New Jersey	8	0	1,662
New Mexico	18	0	36
New York	3	0	1
North Carolina	33	8	148,768
North Dakota	12	0	120
Ohio	9	0	1,806
Oklahoma	22	0	436
Oregon	0	0	0
Pennsylvania	1	0	500
Rhode Island	0	0	0
South Carolina	14	2	8,110
South Dakota	5	0	105
Tennessee	13	2	8,766
Texas	152	1	259,886
Utah	4	0	11
Vermont	0	0	0
Virginia	6	0	1,100
Washington	1	0	1
West Virginia	3	0	1
Wisconsin	17	0	430
Wyoming	0	0	0
Puerto Rico and Virgin Islands	0	0	0
Totals	870	32	671,238

1 There is no single source of tornado damage information. Some of these data may be underestimated. Information on events that occurred at the end of the fiscal year is subject to greater uncertainty because reports may be either preliminary or unavailable. These data provide a good indication of the scope of damages in each state.

Table 5. *Tropical cyclones and their effects during Fiscal Year 1989.*

Name	Month and Year	Location	U.S. Deaths	U.S. Damage
Hurricane Joan [1]	Oct. 1988	Carribean Nicaragua	-	-
Tropical Storm Keith	Nov. 1988	Carribean Florida	0	$3 million
Tropical Storm Allison	Jun. 1989	Gulf of Mexico Texas/Louisiana	11 [2]	$500 million [3]
Tropical Strom Barry	Jul. 1989	Atlantic	-	-
Hurricane Chantal	Jul./Aug. 1989	Gulf of Mexico Texas	13 [4]	$100 million [5]
Hurricane Dean	Jul./Aug. 1989	Atlantic	-	-
Hurricane Erin	Aug. 1989	Atlantic	-	-
Hurricane Felix	Aug./Sep. 1989	Atlantic	-	-
Hurricane Gabrielle	Aug./Sep. 1989	Atlantic	8 [6]	-
Hurricane Hugo	Sep. 1989	Atlantic Leeward Islands Virgin Islands Puerto Rico South Carolina	26 [7]	$9,000 million [8]
Tropical Storm Iris	Sep. 1989	Atlantic	-	-

1. In the South Caribbean: 216 deaths, 270 serious injuries, 122 missing, 211,500 homeless, total damages estimated near $2 billion.
2. All deaths by drowning due to heavy rains.
3. Most damage due to agricultural losses and property damage as a result of flooding.
4. Includes: 3 deaths by drowning on U.S. Mainland; 7 confirmed and 3 presumed dead due to capsized vessel being used in the evacuation of a Gulf of Mexico oil rig.
5. Most damage due to agricultural losses and property damage as result of flooding.
6. All deaths occurred in various states along the New England coast. Many were due to boats capsizing and other accidents/incidents.
7. Includes: 2 deaths on Puerto Rico, 3 deaths on U.S. Virgin Islands, 21 deaths on U.S. Mainland: these are NHC statistics; Red Cross statistics: 22 deaths on Puerto Rico, 7 deaths on U.S. Virgin Islands, 49 deaths on U.S. Mainland for a total number of 78 deaths for U.S. and its territories
8. Includes: $2 billion in damages for Puerto Rico and the U.S. Virgin Islands, $7 billion for U.S. Mainland; An additional $.5 billion in damages occurred on other Caribbean Islands.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS

Mr. BEVILL. Prepare for the record a status of environmental impact statements like the table provided for the 1990 hearings.

General HATCH. We will provide that for the record:

(The information follows:)

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
LOWER MISSISSIPPI VALLEY					
Alton to Gale Organized Levee Districts, IL and MO					EA and FONSI signed Sep 7, 1989.
Cape Girardeau–Jackson, MO					EA and FONSI included in summary report, Dec 1983.
East St. Louis, IL					EA and FONSI for first item of work completed Sep 27, 1989.
Grand Isle		Oct 8, 1976			FONSI signed on Sep 2, 1986 for offshore borrow area.
Kaskaskia Island Drainage and Levee District, IL	Apr 8, 1977	Apr 28, 1978			Supplement submitted on July 26, 1979.
Kaskaskia River, IL	May 6, 1974	Mar 12, 1976			Supplement submitted to EPA on Aug 26, 1983
Lake Pontchartrain and Vicinity, LA	Dec 16, 1983	Dec 7, 1984			
Larose to Golden Meadow, LA	Oct 3, 1972	May 13, 1974			Final supplement filed with EPA on Feb 20, 1985.
Lock and Dam 26, Mississippi River, Alton IL and MO	Mar 15, 1974	Sep 8, 1976			
L&D 26, Second Lock	Oct 15, 1986	Jul 22, 1988			
Mississippi River, Gulf Outlet, LA	May 16, 1975	May 21, 1976			
Mississippi River between the Ohio River and Missouri River (Regulating Works), IL and MO	Jun 13, 1975	Apr 23, 1976			
Mississippi River, Ship Channel		Jul 2, 1982			A supplement was filed in Jul 83. A similar Report was filed in Sep 83. Two other supplements were filed in Nov 86. FONSI for Venice to Mile 181 filed with EPA on Dec 18, 1987. FONSI for interim saltwater mitigation plan and revised marsh creation quantities filed with EPA on Apr 22, 1987.
New Orleans to Venice, LA	Mar 23, 1984	Apr 12, 1985			Supplement for West Bank River Levee Submitted on Dec 7, 1987.
Ouachita and Black Rivers,	Mar 22, 1974	Dec 23, 1974			Draft Supplement scheduled for submission in 2nd qtr FY 89.
Pearl River, Slidell		Sep 19, 1986			
Red River Waterway, Mississippi River to Shreveport, LA	Jan 10, 1973	May 11, 1973			Final Supplement No. 1 filed Feb 25, 1977. A Second Supplement was submitted to EPA on Nov 10, 1983.
Westwego to Harvey Canal, LA		Oct 23, 1987			

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
MISSISSIPPI RIVER COMMISSION					
Atchafalaya Basin, LA	Jun 15, 1981	Aug 20, 1982			
Atchafalaya Basin Floodway, LA	Jun 15, 1981	Aug 20, 1982			
Cache Basin, AR		Nov 15, 1974			
Channel Improvement	Sep 30, 1974	Apr 16, 1976			
Eight Mile Creek, AR		Mar 6, 1981			
Helena Harbor, AR		Dec 14, 1979			
L'Anguille River, AR		Nov 12, 1985			
Memphis Harbor (Ensley Berm), TN		Feb 5, 1980			
Mississippi Delta Region, LA		Apr 5, 1985			
Nonconnah Creek TN and MS		Nov 29, 1976			Final supplemental EIS filed Jul 22, 1982.
Sardis Dam (Dam Safety), MS					EA and FONSI completed in Apr 1985.
St. Francis Basin, AR and MO	Feb 7, 1973	Dec 11, 1973			
Tensas Basin, LA		May 18, 1984			
Tensas Basin, AR and MO:					
Boeuf and Tensas Rivers	Oct 13, 1981	May 8, 1984			
Sicily Island	Jun 29, 1978	May 14, 1982			
Below Red River	Mar 11, 1980	Oct 30, 1981			
Lack Chicot Pumping Plant	Sep 24, 1973	Aug 29, 1975			
Tensas–Cocodrie Pumping Plant	May 28, 1976	Sep 24, 1976			
West Tennessee Tributaries, TN	Aug 19, 1974	Jul 21, 1975			Draft supplement, May 1982. Final supplement, Feb 9, 1983.
Yazoo Basin, MS:					
Sardis Lake	Dec 16, 1977	Feb 20, 1979			
Arkabutla Lake	Dec 16, 1977	Feb 20, 1979			
Enid Lake	Dec 16, 1977	Feb 20, 1979			
Grenada Lake	Dec 16, 1977	Feb 20, 1979			
Greenwood	Jan 24, 1975	Jan 16, 1976			
Upper Yazoo Projects	Jan 24, 1975	Jan 16, 1976			
Main Stem	Jan 24, 1975	Jan 16, 1976			
Tributaries:					
All work except Ascalmore–Tippo and Oposeum Bayous	Jan 24, 1975	Jan 16, 1976			
Ascalmore–Tippo and	Aug 15, 1973	Jun 6, 1975			
Big Sunflower River, etc.	Jan 24, 1975	Jan 16, 1976			
Yazoo Backwater	Jan 24, 1975	Jan 16, 1976			
Mississippi River Levees		Apr 16, 1976			

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BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
MISSOURI RIVER					
Blue River Channel, Kansas City, MO		Sep 8, 1975			
Harry S. Truman Dam and Reservoir, MO	Sep 15, 1972	Feb 29, 1973 Sep 21, 1973 (Suppl)			Appendix to Supplemental filed, Dec 10, 1973. The Final Supplement concerning downstream effects was filed Nov 28, 1980.
Missouri National Recreational River		Aug 12, 1980			
Missouri River Levee Systems, Riverside–Quindaro Drainage District (L385)	Nov 29, 1982	Nov 18, 1983			
Papillion Creek, and Tributaries Lakes, NE		Nov 23, 1971			
EIS Supplement (Site 18)	Dec 18, 1981	Aug 24, 1982			
EIS Supplement (Site 20)		Feb 19, 1982			
EIS Supplement (D/S Improv)		Mar 28, 1986			
Westerly Creek, CO		Jan 15, 1980			
NORTH PACIFIC					
Bonneville Navigation Lock, OR & WA		Mar 20, 1961			Supplemental filed Mar 1, 1986.
Bonneville 2d Powerhouse OR & WA	Aug 20, 1971	Apr 14, 1972			Supplement addressing city relocations was filed with CEQ on Mar 19, 1976
Chief Joseph Additional Units, WA	May 20, 1971	Feb 2, 1972			Supplement filed Jul 17, 1975
Columbia River Juvenile Fish Mitigation, WA, OR, ID					Generally covered by existing EIS's. EA's and Supplemental EIS's will be developed as necessary.
Elk Creek Lake, OR		Sep 17, 1971			Supplement filed, Dec 24, 1980; Suppl Info Report, Sep 23, 1985. Suppl EIS to comply with court order is indefinite pending direction from Court.
Grays Harbor, WA		May 13, 1988			FONSI and ROD to be signed Feb 1990.
John Day Powerhouse, OR & WA		Jul 29, 1975			
Lower Columbia River Bank Protection, OR & WA	Mar 13, 1972	Jan 31, 1973			Supplement filed, Oct 1, 1976.
Lower Snake River Fish and Wildlife Compensation, WA, OR & ID		Oct 29, 1977			
Mud Mountain, WA (Dam Safety Assurance)					Environmental Assessment, Jun 19, 1986.
Mud Mountain, WA (O&M Major Rehab)					Environmental Assessment, Jun 19, 1986

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
NEW ENGLAND					
Jonesport Harbor, ME	Jan 11, 1973	Apr 30, 1976			
Portsmouth Harbor, NH & ME		Apr 23, 1984			Environmental Assessment and finding of no significant impact, Apr 23, 1984.
Revere Beach, Revere, MA		Nov 9, 1970			Environmental Assessment incorporated into the General Design Memorandum.
Town Brook, Quincy & Braintree, MA		Sep 29, 1980			Environmental Assessment and finding of no significant impact, Sep 29, 1980.
NORTH ATLANTIC					
Ardsley, NY	Nov 20, 1973	Jun 18, 1976			
Baltimore Harbor and Channels, MD	Sep 24, 1973	Jan 17, 1975			SIR Jul 11, 1986.
Baltimore Harbor and Channels, MD and VA	Jun 5, 1981	Sep 11, 1981			SIR Mar 5, 1982, Apr 3, 1987.
Barnegat Inlet, NJ	Apr 21, 1975	Oct 8, 1976			SIR Jul 9, 1982.
Cape May Inlet to Lower Township, NJ	May 31, 1974	Oct 8, 1976			SEIS Apr 14, 1981.
C&D Canal Bridges, DE & MD (Major Rehab)					Environmental Assessment will be incorporated into Design Memorandum.
Cowaneseque Lake, PA	Oct 30, 1981	Dec 3, 1982			
Delaware Coast Protection	Oct 30, 1970	Jun 1, 1971			DSEIS Apr 18, 1975
East Rockaway Inlet, NY	Feb 22, 1974	May 13, 1974			SEIS Jan 8, 1980.
F. E. Walter Dam, PA (Modification)	Apr 12, 1965	Jan 31, 1966			
Kill Van Kull, NY & NJ	Jul 31, 1978	Jul 31, 1981			FSEIS Feb 13, 1987.
Liberty State Park Levee and Seawall, NJ		Mar 15, 1978			EIS prepared by Dept. of Interior
Lock Haven, PA	Apr 9, 1975	Aug 20, 1976			DSEIS Apr 9, 1980, FSEIS Jun 5, 1981.
Lynnhaven Inlet, VA	Feb 27, 1979	Aug 24, 1979			SIR Apr 24, 1981.
Moriches Inlet, NY	Oct 29, 1982	Jul 1, 1983			
New York Harbor Collection and Removal of Drift, NY	Feb 28, 1975	Mar 28, 1976			
Norfolk Harbor and Channels, VA	Jan 28, 1980	Apr 3, 1981			SEIS Jun 14, 1985, SIR May 16, 1986.
Ramapo and Mahwah Rivers, Mahwah, NJ and Suffern, NY	Jun 24, 1983	Jul 13, 1984			
Richmond, VA	Oct 18, 1974	Oct 8, 1976			SIR Jul 24, 1981
Tamaqua, PA	May 25, 1972	Aug 15, 1975			SEIS Oct 2, 1981.

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
NORTH CENTRAL					
Bassett Creek, MN		Jul 10, 1978		Nov 1989	
Supplement					
Chaska, MN	Oct 16, 1978				
Supplement 1	May 21, 1982	Oct 8, 1982			To address Clean Water Act.
Supplement 2	Sep 14, 1984	May 3, 1985			Change in location of East Creek Diversion.
Hannibal, MO		Nov 22, 1985			
Little Calumet River, IN		Feb 3, 1984			Environmental Assessment on borrow sites circulated for public review/comment Jan 1990.
Loves Park, IL		Mar 14, 1980			1985 EA resulted in FONSI signed Dec 1986.
North Branch Chicago River, IL	Jun 10, 1983	May 11, 1984			FONSI Jul 1, 1987. Change reservoir site (29A).
Presque Isle Peninsula, PA (Perm.)		Mar 13, 1981			
Rochester, MN	Jul 24, 1978	May 9, 1979			Current EA for public review in 2nd qtr FY 1990. FONSI is expected with signing on Mar 1990. Sec. 401 State certificate will be obtained in accordance with EA schedule.
Sheyenne River, ND	May 29, 1982	Apr 13, 1984			EIS filed with CEQ on Sep 18, 1973. Record of Decision Jun 8, 1987.
Souris River Basin, ND					
Generic/Velva Levee EIS	Oct 1982	Feb 24, 1984			
4' Rise–Lake Darling FEIS		Feb 14, 1986			ROD issued on Jun 30, 1986/signed Oct 1986.
WRDA 86 EIS	Nov 16, 1987	Jul 1988			Public review completed Aug 1978.
State Road and Ebner Coulees	Apr 20, 1981	Jan 29, 1982			Record of Decision May 1988.
Supplement		Feb 14, 1986			
Upper Mississippi River System Environmental Management Program					NEPA compliance will be accomplished prior to implementation of specific project construction.

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
OHIO RIVER					
Big South Fork Nation River and Recreation Area, KY & TN	Oct 3, 1975	May 14, 1977			
Evansville, IN	Jul 3, 1973	Nov 19, 1973			
Gallipolis Locks & Dam, WV & OH	Dec 12, 1980	Jan 8, 1982			
Grays Landing	Sep 30, 1983	Aug 10, 1984			Supplemental information report Mar, 1988.
Levisa & Tug Forks of the Big Sandy River & Cumberland River, WV, VA & KY:					
Williamson, WV	Sep 25, 1981	Dec 8, 1982			
Pineville, KY	Sep 18, 1981	Dec 30, 1982			
Barbourville, KY		Feb 1, 1984			FONSI Feb 1, 1984.
Harlan KY		Apr 22, 1988			
South Williamson, KY		Dec 3, 1982			
Mateway, WV		Dec 3, 1982			
Mill Creek, OH	Oct 7, 1970	Oct 17, 1974			
Nelsonville, OH		Jun 19, 1981			
Newark, OH	Jul 28, 1972	Oct 1, 1974			Supplemental information July 1985.
Paintsville Lake, KY		Aug 19, 1971			Supplemental information May 1978.
Point Marion	Sep 30, 1983	Aug 10, 1984			
Senecaville Lake, OH (DSA)		Jul 5, 1977			FEIS Jul 5, 1977. FONSI Nov 1987.
Southwestern Jefferson County, KY	Dec 9, 1971	Jul 12, 1973			
Stonewall Jackson Lake, WV		Nov 12, 1971			
Taylorsville Lake, KY		May 5, 1976			
Turtle Creek				May 1990	Environmental Assessment May 1990. FY 1989.
Winfield		Sep 25, 1987			
Yatesville Lake, KY		Apr 12, 1972			

STATUS OF PROJECTS IN LITIGATION

Mr. BEVILL. Bring the Committee up to date on the status of any project in litigation.

General HATCH. As of February 12, 1990 the following Corps projects are in litigation:

1. Arcadia Lake, Oklahoma - The U.S. filed suit against the city of Edmond, Oklahoma and the Edmond Public Works Authority for breach of contract, seeking specific performance of a contract for cost-sharing for recreation at the lake. The city contends the actual cost of the recreation project unreasonably exceeded the original cost estimates and that it was not made aware of price increases. Motions are pending. (United States v. City of Edmond)

2. Cross Florida Barge Canal, Florida - In 1981 the court dismissed the lawsuit but continued in effect the injunction prohibiting the Corps from doing any work in the canal right-of-way without its approval. Recently, Congress has effectively reduced the project to a natural resource and public use status without specifically deauthorizing the canal. (Public Law 99-662). The injunction technically remains in effect. (Environmental Defense Fund v. Corps of Engineers, M.D.Fla.)

3. Elk Creek Dam and Lake, Oregon - In June 1987, the Federal 9th Circuit Court of Appeals directed the District Court to enjoin construction of the $120 million project until completion of a Federal Environmental Impact Statement Supplement addressing certain NEPA deficiencies. On August 31, 1987, the District Court enjoined further construction of the project beyond the height of 1,563 feet (completion height of the project is 1,729 feet), and all actions to clear the reservoir area of foliage. The Court permitted continued quarrying and stockpiling of rock on the construction site with restoration of the quarry area to be immediately accomplished after its use. A partial termination was issued to the contractor in December 1987, and negotiations for a termination proposal are underway for this $68 million contract. A Motion for Reconsideration was denied by the 9th Circuit in December 1987. The case was appealed to the Supreme Court, which reversed the Ninth Circuit's decision on May 1, 1989. The Supreme Court ruled that NEPA does not require a worst case analysis; that a complete mitigation plan is not necessarily required in an EIS; and that a supplemental EIS to address new information is required only when the agency determines the information is significant and has a bearing on remaining actions. The case was remanded to the District Court and is awaiting decision on the scope of the remaining environmental analysis. (Oregon Natural Resources Council v. Marsh, D.C. Oregon)

4. Imperial Beach, California - The District court has enjoined construction of this beach erosion control project; it found that significant changes which have occurred since the EIS was prepared in 1978 have necessitated the preparation of supplemental environmental documentation. The Los Angeles District is preparing a supplemental EIS. (Knox v. U.S. Army Corps of Engineers, S.D. Cal.)

5. Kentucky River Locks and Dams 5-14 - An Agency of the Commonwealth of Kentucky seeks a court order declaring that prior to turning over locks and dams 5-14 to the agency, the Corps is obligated to provide one-time maintenance and repairs, and major maintenance and engineering assistance, as allegedly agreed to in a 1986 MOU and 1988 supplement. In the alternative, plaintiff seeks an award of damages sufficent to pay the costs. Plaintiff also alleges NEPA violations. No injunction has been issued. (Kentucky Natural Resources and Environmental Protection Cabinet v. U.S.)

6. Oakland Harbor Project, California - A fisherman's marketing association filed suit challenging the project; it alleged the EIS was inadequate and that the Corps failed to comply with the Fish and Wildlife Coordination Act. The Ninth Circuit declined to enjoin the project, but the litigation continues in District Court with respect to the adequacy of the EIS and the coordination undertaken pursuant to the Fish and Wildlife Coordination Act. (Half Moon Bay Fisherman's Marketing Association v. Carlucci)

7. Pine Flat Lake Project, California - Four public entities filed suit alleging the Corps changed its operation of Pine Flat Dam in 1979 without statutory authorization and in violation of NEPA (no EIS). Motions are pending. (Central California Irrigation District, et al v. United States)

8. Richard Russell Dam and Lake, South Carolina and Georgia- The South Carolina Department of Wildlife and Marine Resources secured an injunction halting all construction and installation of pumpback units at the project. They challenged the authorization of the project and alleged violations of the National Environmental Policy Act and the Clean Water Act. The U.S. appealed to the Fourth Circuit, which affirmed in part and reversed in part. At present, installation of the units is permitted, but operation is still enjoined. Installation of the four pumpback turbines is proceeding with completion scheduled for December, 1991. A draft supplemental EIS is scheduled to be issued in March 1990 on the effects on pumped storage. The record of decision is scheduled for January, 1991. Following the completion of SEIS, the government will petition the court to dissolve the injunction prohibiting operation and testing. (South Carolina Department of Wildlife and Marine Resources v. Marsh)

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
SOUTH ATLANTIC					
A/WW – Replacement of Federal Highway Bridges, NC		Nov 16, 1970			Supplemental for Core Creek Bridge was filed Feb 1990; for Hobucken, Aug 1991; and for Fairfield, Aug 1993.
B. Everett Jordan Dam and Lake, NC	May 11, 1971	Oct 22, 1971			
Black Warrior & Tombigbee Rivers, Jackson, AL					EA will be prepared.
Canaveral Harbor, FL		Nov 15, 1985			
Carolina Beach & Vic, NC	Nov 15, 1974	Jul 17, 1981			Supplemental on Area South is scheduled for the third quarter of FY 1992.
Central and Southern Florida:					
Upper St. Johns River Basin	Jul 19, 1985	Nov 29, 1985			
Charleston Harbor, SC		Mar 29, 1976			Environmental Assessment for Wando River, Jun 1984.
Dade County, FL	Mar 3, 1975	Aug 27, 1976			Supplement on North Haulover Beach Park filed Mar 18, 1983.
Falls Lake, NC	Aug 23, 1973	May 1, 1974			
Four River Basins, FL:					
C–136 and Lower Hillsborough Basin	May 25, 1973	Nov 8, 1974			
C–132, S–153 and S–154					Environmental Assessment Feb 3, 1981.
Manatee County, FL		Jun 29, 1979			Supplement scheduled May 1990.
Oates Creek, GA		Aug 28, 1981			

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
SOUTH ATLANTIC (CONT'D)					
Pinellas County, FL:					
Long Key, FL	May 25, 1964	Nov 8, 1965			Environmental Assessment, Sep 20, 1978.
Sand Key, FL	May 25, 1964	Nov 8, 1965			Environmental Assessment, Sep 20, 1978.
Treasure Island, FL	May 25, 1964	Nov 8, 1965			Environmental Assessment, Sep 20, 1978.
Portugues and Bucana Rivers, PR	Apr 27, 1973	Feb 25, 1974			
Richard B. Russell Dam	Jul 1, 1971	May 31, 1974			Water Quality Supplement, Jun 2, 1976. Pumped Storage Supplement, Oct 28, 1979 F&WL Mitigation Supplemental, Dec 11, 1981
Roanoke River Upper Basin, VA		Feb 12, 1965			A finding of no significant impact was signed on Jun 30, 1969.
Sarasota County, FL		Apr 9, 1965			
Sowashee Creek, Meridian, MS	Oct 14, 1983	Oct 12, 1984			Environmental Assessment will be prepared for proposed additional drop structure in third quarter, FY 1989.
Tennessee–Tombigbee Waterway Wildlife Mitigation, AL and MS		Apr 20, 1971			Supplements filed on Oct 1, 1975 and Feb 28, 1978.
Threemile Creek, Mobile, AL	Jun 11, 1982	Nov 10, 1983			
Tombigbee River and Tributaries, MS and AL	Jun 18, 1974	May 30, 1975			Supplemental EIS on Luxapalila Creek scheduled for Apr 1990.
Village Creek, AL		Jun 18, 1982			
William Bacon Oliver Lock & Dam Replacement	Apr 8, 1983	Jun 15, 1984			

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
SOUTH PACIFIC					
Cache Creek Settling Basin, CA		Jul 25, 1980			FONSI filed on Jul 30, 1986.
Corte Madera Creek, CA		Aug 26, 1974	Apr 13, 1979	Nov 13, 1987	Final Supplemental EIS for Rose Valley Unit 4 filed Nov 13, 1987.
Dry Creek (Warm Springs), CA	Jul 18, 1973	Dec 10, 1973			Final Supplemental EIS filed with CEQ Sep 17, 1976.
Fairfield Vicinity Streams, CA		Apr 5, 1978			Environmental Assessment of modified project submitted to EPA on Dec 15, 1988.
Guadalupe River, CA		Oct 1988			Supplemental EIS scheduled for May 1990.
Little Dell Lake, UT		Jul 22, 1975			Final EIS approved by EPA Apr 16, 1986.
Merced County Streams, CA		Sep 25, 1981			
New Melones, CA		Jul 17, 1972			Supplemental EIS on relocation of Camp Milne Road filed Mar 18, 1977.
Oakland Harbor, CA		Mar 1988		Nov 1991	
38 foot project					
42 foot project					
Pajaro River, CA		Nov 3, 1982			
Phoenix Arizona & Vicinity, AZ		Sep 27, 1978			Environmental Assessment completed on
(Incl New River)(Stage 2& Remaining Work)					Apr 4, 1988.
Redbank and Fancher Creeks, CA		Nov 7, 1980			EA to address groundwater impacts on Thompson Hayward toxic waste site signed May 4, 1989.
Richmond Harbor, CA		May 21, 1982		Oct 1991	
Sacramento River Bank Protection Project, CA		Jun 18, 1973			Supplementals filed May 6, 1975; Apr 6, 1979; Feb 1, 1985; Jan 15, 1988; Jun 19, 1988; Feb 1988.
Sacramento River Deepwater Ship Channel, CA		May 8, 1981			Supplemental Jan 2, 1987; EA May 1, 1988.
Sacramento River, Flood					Project essentially completed prior to 1978. FONSI Aug 15, 1986, & Nov 1988.
Sacramento Urban Area Levee Recon, CA					EA/FONSI Nov 21, 1990.
Santa Anna River Mainstem, CA		Jun 1989			Supplemental reflecting current plan.

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
SOUTH PACIFIC (CONT'D)					
San Francisco Bay to Stockton, CA:					
San Francisco Bar		Apr 14, 1971			
Venice Island to Stockton		Oct 14, 1971			
Avon to Stockton		Jul 26, 1981			
West Richmond		Jul 15, 1984			
Southhampton Channel & Richmond Long Wharf Maneuvering Area					
Carquinez Straight					
Suisun Bay Channel–Pinhole Shoal				Mar 1992	
San Luis Rey River, CA		Nov 13, 1979		Jul 1990	Supplemental Mar 31, 1982; EA Mar 25, 1988.
Surfside Sunset, Newport Beach, CA		Apr 9, 1975			Supplemental submitted to EPA on Aug 30, 1979.
Sweetwater River, CA		Aug 6, 1982			
Walnut Creek, CA		Jul 27, 1977			EA Sep 1988.
Walnut and Ramon Creeks		Aug 13, 1984			
Upper Pine Creek		Dec 24, 1985			
Wildcat and San Pablo Creeks, CA		Jun 7, 1978			
		Mar 28, 1986			Supplemental EIS for Reach 2 is required.
PACIFIC OCEAN					
Maalea Harbor, Maui, HI		Apr 28, 1980			

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1991

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
SOUTHWESTERN					
Acequias Irrigation System, NM					Environmental Assessment/FONSI will be prepared for each Acequia Restoration project.
Albuquerque North Diversion Channel, NM (Deficiency Correc)					Environmental Assessment/FONSI to be signed in 1st qtr FY 1991.
Beaver Lake, AR (Major Rehab)					Findings of no significant impact. Signed Mar 1988, 401 certificate Dec 2, 1988, 404 Evaluation Jan 14, 1989.
Beaver Lake, AR (Water Quality Enhancement)					Environmental Assessment/FONSI to be signed in 2nd qtr FY 1990.
Clear Creek, TX	Dec 15, 1981	Aug 27, 1982			Sec 404 Evaluation Report was included in EIS.
Boggy Creek, TX		Jun 30, 1980			Nationwide permit #26 issued on Jul 19, 1977 covers this project.
Cooper Lake and Channels, TX		Jun 24, 1977			Supplemental EIS filed with EPA in Mar, 1981. Sec 404 Evaluation Report was included in Supplemental EIS.
El Paso, Tx					
Central Area		Nov 9, 1970			Nationwide permit issued on Jul 19, 1977 covers this project.
Northwest Area	Jan 31, 1974	Nov 7, 1977			
Southeast Area		Nov 4, 1987			
Fourche Bayou in the Vicinity		Mar 12, 1981			Sec 404 Evaluation Report was included in EIS.
Freeport Harbor, TX		Mar 2, 1979			Sec 404 Evaluation Report received Congressional approval in the FY 1981 Energy and Water Development Act.
Great Bend, KS	Apr 19, 1985	May 8, 1987			Supplemental Environmental Impact Report filed with EPA on Apr 18, 1985.
Hallstead, KS		Mar 12, 1981			Sec 404 Evaluation Report signed by District Engineer Sep 23, 1977.
Joe Pool Lake, TX		Dec 2, 1973			Supplemental EIS sent to EPA on Feb 8, 1988.
Lake Wichita, Holliday Creek		Mar 5, 1981			

BUDGETED STATUS OF EIS—LAND ACQUISITION, CONSTRUCTION AND REHABILITATION, FISCAL YEAR 1981

Project	Date Filed With CEQ/EPA		Scheduled Filing Plan		Remarks
	Draft	Final	Draft	Final	
SOUTHWESTERN (CONT'D)					
McClellan–Kerr Arkansas River Navigation System, AR & OK:					
Locks and Dams		Mar 6, 1975			For Little Rock District O&M EIS.
		Jul 28, 1975			For Tulsa District O&M EIS.
Lock & Dam 2 Channel Scour					Environmental Assessment/Findings of no significant impact to be signed 3rd qtr.
Lock & Dam 2 Containment Struc					Findings of no significant impact signed Mar, 1967 Sec 404 Oct 14, 1968, 401 Certificate Sep 23, 1968.
Mingo Creek, OK		Jun 3, 1981			
Mouth of Colorado River, TX					
Navigation Component		Aug 24, 1978			Sec 404 Evaluation Report was included in EIS.
Diversion Component		Dec 16, 1981			Sec 404 Evaluation Report was included in EIS.
Ray Roberts Lake, TX		Mar 4, 1974			Supplement filed, Sep 16, 1975. Sec 404 Evaluation Report signed by District Engineer, Sep 12, 1980.
Rio Grande Floodway, Truth or Consequences, NM	Jul 15, 1966	Apr 1, 1968			Sec 404 Evaluation Report was completed on Apr 1, 1968.
San Antonio Channel Improvement, TX		Nov 9, 1971			State 404 Certification issued, Sep 3, 1980, 1980 for Units 8–3, 8–4 and 8–5. Final supplemental EIS for Unit 8–3–2 was submitted to EPA Feb 13, 1981.
Sims Bayou, Houston, TX	Apr 1962	Oct 14, 1963			EIS filed with Feasibility Report. Sec 404 Evaluation was included in EIS.
Taylors Bayou, TX		Aug 18, 1975			Supplemental filed Jul 31, 1981. Sec 404 Evaluation Report signed by District Engineer, Nov 14, 1980.
Texas City and Vicinity, Hurricane Flood Protection, TX		May 11, 1979			EIS filed with EPA.
Wister Lake, MO (Major Rehab)					Finding of no significant impact was signed by District Engineer on May 23, 1968.

9. Santa Paula Creek Flood Control, California - This project was enjoined in 1976, because the court found the EIS prepared for it inadequate. A supplemental EIS has been prepared and is under review. (Friends of SAnta Paula Creek v. Calloway, C.D.Cal.)

10. Sweetwater River Channel Project, San Diego, Ca. - This litigation involves the Endangered Species Act. In May, 1987 the Ninth Circuit found the Corps in violation of the Act, and the court enjoined most of the work on the project. The case was remanded to the District Court to issue an order in accordance with the decision. Since then the only construction related to the project which has occurred is the construction of some emergency flood water shunts. Following a comprehensive settlement, on 22 February 1989 a stipulation for dismissal was filed and dismissal was ordered by the court. Two cross claims remain. These are California v. United States and United States v. county of San diego. On 21 August 1989 the California suit was removed to the claims Court. The suits involve delay costs associated with the injunction. Pending resolution of the California suit, the action against the county is dormant. (Sierra Club, et al. v. Marsh, et al.)

11. Trinity River, Texas - The project has been enjoined since 1973. An EIS has been filed with EPA, and the Record of Decision is pending. Mitigation of fish and wildlife losses is authorized under section 601(b) of H.R. 6. The environmental documentation must undergo court review for adequacy before construction of a project under the Trinity River Project Authorization can be initiated. (Sierra Club v. Marsh, S.D.Texas)

12. Yalobusha River Maintenance Project, Mississippi - This maintenance project to restore the design channel capacity to a Corps flood control project reservoir outlet channel was enjoined for lack of an EIS. The Vicksburg District has initiated the NEPA process to complete an EIS for the maintenance of all outlet channels for the Mississippi flood control reservoirs. (State of Mississippi v. U.S.)

BALANCE-TO-COMPLETE REPORT

Mr. BEVILL. Prepare a detailed "balance-to-complete" report similar to that submitted for last year's hearings.

General HATCH. Yes, sir.

(The information follows:)

As of 1 February 1990

CORPS OF ENGINEERS - CIVIL WORKS
SUMMARY OF PRECONSTRUCTION ENGINEERING & DESIGN (PED)
AUTHORIZED PROJECTS
(Thousands of Dollars)

	No. of Proj.	Est. Federal Cost	Allocations Thru FY 1990	Budget FY 1991	Balance to Complete Scheduled	Balance to Complete Unscheduled
PROJECTS IN FY 1991 BUDGET:						
PED New Starts	2	26880	0	750	1250	24880
Multiple Purpose	2	26880	0	750	1250	24880
Continuing PED	57	2158653	68271	25485	27038	2037859
Navigation	14	1029975	20370	7178	3563	998862
Beach Erosion Control	5	94133	4068	1655	2452	85958
Flood Control	36	976143	41666	15767	20373	898339
MR&T Features	2	58400	2167	885	648	54700
Total	59	2185533	68271	26235	28288	2062739
PROJECTS NOT IN BUDGET:						
PED Not Started	47	749218	0	0	0	749218
Navigation	10	252198	0	0	0	252198
Beach Erosion Control	4	12090	0	0	0	12090
Flood Control	26	376105	0	0	0	376105
Multiple Purpose	6	52925	0	0	0	52925
MR&T Feature	1	55900	0	0	0	55900
PED Not Completed	41	1818249	44437	0	0	1773812
Navigation	11	337555	6315	0	0	331240
Beach Erosion Control	2	39410	3447	0	0	35963
Flood Control	22	1291534	28415	0	0	1263119
Multiple Purpose	4	71650	1907	0	0	69743
MR&T Features	2	78100	4353			73747
PED Fully Funded	32	671834	57029	0	0	577805
Navigation	9	109502	8397	0	0	101105
Beach Erosion Control	1	350	350	0	0	0
Flood Control	18	505352	43657	0	0	461695
MR&T Features	4	19630	4625	0	0	15005
Total	120	3202301	101466	0	0	3100835
GRAND TOTAL	179	5387834	169737	26235	28288	5163574

CORPS OF ENGINEERS - CIVIL WORKS
SUMMARY OF CONSTRUCTION PROJECTS
(Thousands of Dollars)

	No. of Proj.	Est. Federal Cost	Allocations Thru FY 1990	Budget FY 1991	Balance to Complete	
					Scheduled	Unscheduled
PROJECTS IN FY 1991 BUDGET:						
Continuing Construction	144	28719666	15204906	1424049	9264478	2826233
Navigation	31	6395769	3305395	486261	1362125	1241988
Beach Erosion Control	8	1242200	66355	61757	1101762	12326
Flood Control	85	9090377	4621271	585676	2566378	1317052
Multiple Purpose	8	2908320	2639857	64695	172419	31349
MR&T Features	12	8883000	4372028	225660	4061794	223518
Dam Safety Assurance	3	89930	18480	10090	61380	0
Flood Control	2	60650	12118	9535	38997	0
MR&T Feature	1	29300	6362	555	22383	0
Total	147	28809616	15223386	1434139	9325858	2826233
PROJECTS NOT IN BUDGET:						
Construction	143	6124502	3744069	0	0	2380433
Navigation	41	3281977	2593012	0	0	688965
Beach Erosion Control	14	210339	76802	0	0	133537
Flood Control	72	2192347	1003168	0	0	1189179
Multiple Purpose	3	116100	3310	0	0	112790
MR&T Features	13	323539	67777	0	0	255762
Dam Safety Assurance	2	58900	32374	0	0	26526
Flood Control	1	29400	3131	0	0	26269
Multiple Purpose	1	29300	29243	0	0	257
Total	145	6183402	3776443	0	0	2406959
GRAND TOTAL	292	34993018	18999829	1434139	9325858	5233193

CORPS OF ENGINEERS - CIVIL WORKS
SUMMARY - ALL AUTHORIZED PROJECTS 1/
(Thousands of Dollars)

	No. of Proj.	Est. Federal Cost	Allocations Thru FY 1990	Budget FY 1991	Balance to Complete	
					Scheduled	Unscheduled
ACTIVE PROJECTS:						
Preconstruction Engineering & Design (Auth. Projects)	179	5387834	169737	26235	28288	5163574
Construction Projects	292	34993018	18999829	1434139	9325858	5233192
Total	471	40380852	19169566	1460374	9354146	10396766
DEFERRED PROJECTS	87	3897669 2/	148845	0	0	3747470
(MR&T Features)	(2)	(153591)	(20237)	(0)	(0)	(132000)
INACTIVE PROJECTS	211	6005692 2/	553295	0	0	5451997

1/ The list of projects deauthorized in accordance with Section 1001(b)(1) of P.L. 99-662 was under review at the time this summary was compiled and therefore is not reflected herein.

2/ Cost estimates of deferred and inactive projects are not adjusted to current price levels.

KEY TO DIVISION/DISTRICT ABBREVIATIONS

LMV Lower Mississippi Valley Division

LMM Memphis District
LMN New Orleans District
LMS St. Louis District
LMK Vicksburg District

MRD Missouri River Division

MRK Kansas City District
MRO Omaha District

NED New England Division

NAD North Atlantic Division

NAB Baltimore District
NAN New York District
NAO Norfolk District
NAP Philadelphia District

NCD North Central Division

NCB Buffalo District
NCC Chicago District
NCE Detroit District
NCR Rock Island District
NCS St. Paul District

NPD North Pacific Division

NPA Alaska District
NPP Portland District
NPS Seattle District
NPW Walla Walla District

ORD Ohio River Division

ORH Huntington District
ORL Louisville District
ORN Nashville District
ORP Pittsburgh District

POD Pacific Ocean Division

SAD South Atlantic Division

SAC Charleston District
SAJ Jacksonville District
SAM Mobile District
SAS Savannah District
SAW Wilmington District

SPD South Pacific Division

SPL Los Angeles District
SPK Sacramento District
SPN San Francisco District

SWD Southwestern Division

SWA Albuquerque District
SWF Fort Worth District
SWG Galveston District
SWL Little Rock District
SWT Tulsa District

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PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 91 BUDGET (AUTH PROJECTS)
CONTINUING PED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLET SCHEDULED	BALANCE TO COMPLET UNSCHEDUL
BEACH EROSION							
SAM	PANAMA CITY BEACHES, FL	31,913	1,680	1,352	800	1,528	28,233
NCC	ILLINOIS BEACH STATE PARK, IL	5,190	870	95	100	675	4,320
NCC	INDIANA SHORELINE EROSION, IN	21,400	425	320	105	0	20,975
NAN	ATLANTIC COAST OF NYC, ROCKAWAY INL TO NORTON PT., NY \(D\(D	26,200	1,900	1,650	250	0	24,300
SAC	FOLLY BEACH, SC	9,430	1,300	651	400	249	8,130
	TOTALS NO. OF PROJECTS	94,133 5	5,175	4,068	1,655	2,452	85,958
FLOOD CONTROL							
SPL	RILLITO, AZ	12,300	2,250	1,105	610	535	10,050
SPK	NAPA RIVER, CA	77,715	5,000	4,534	410	56	72,715
NPW	LITTLE WOOD RIVER, VICINITY OF GOODING AND SHOSHONE, ID	4,050	500	200	300	0	3,550
MRO	PERRY CREEK, IA	25,400	2,100	1,409	100	592	23,300
NCR	WEST DES MOINES-DES MOINES, IA	13,500	1,200	946	354	0	12,300
SWT	ARKANSAS CITY, KS	13,400	1,100	507	300	293	12,300
SWT	UPPER LITTLE ARKANSAS RIVER WATERSHED, KS	11,100	1,440	1,179	210	51	9,660
SWT	WINFIELD, KS	4,100	640	171	150	319	3,460
ORL	HAZARD, KY	6,980	1,000	93	200	707	5,880
ORL	SOUTH FRANKFORT, KY	7,250	1,342	1,190	152	0	5,908
LMN	TANGIPAHOA, TCHEFUNCTE, AND TICKFAW RIVERS, LA	2,647	2,647	524	50	2,073	0
MCS	HOUSTON, MN	4,560	1,400	926	784	190	3,160

PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 91 BUDGET (AUTH PROJECTS)
CONTINUING PED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL							
NCS	ST. PAUL, MN	7,160	1,700	1,303	397	0	5,460
SPK	TRUCKEE MEADOWS, NV	51,500	4,300	2,824	1,476	0	47,200
NAN	LOWER SADDLE RIVER, NJ	28,700	3,900	1,982	590	1,323	24,800
NAP	MOLLY ANN'S BROOK AT HALEDON, PROSPECT PARK AND PATERSON	14,500	1,900	572	420	908	12,600
NAN	RAMAPO RIVER AT OAKLAND, NJ	6,000	1,300	873	250	177	4,700
NAN	RARITAN RIVER BASIN, GREEN BROOK SUB-BASIN, NJ	153,300	12,900	5,562	2,000	5,338	140,900
SWA	RIO GRANDE FLOODWAY, SAN ACACIA TO BOSQUE DEL APACHE, NM	29,700	1,510	1,247	263	0	28,190
NAN	WESTCHESTER CTY STREAMS, SHELDRAKE R TOWN OF MAMARONECK, NY	2,625	700	429	150	121	1,925
SAW	SUGAR CREEK BASIN, NC & SC	27,300	2,650	141	800	1,709	24,650
ORL	FAIRFIELD, OH	11,100	1,359	1,209	150	0	9,741
ORL	MOLES CREEK AT WEST CARROLLTON AND MORAINE, OH	1,550	770	383	100	287	780
ORH	WEST COLUMBUS, OH	23,163	3,300	877	1,400	1,023	19,863
SWT	FRY CREEKS, BIXBY, OK	11,900	1,400	1,232	168	0	10,500
ORP	SAW MILL RUN, PITTSBURGH, PA	6,300	1,100	572	310	218	5,200
SAJ	RIO PUERTO NUEVO, PR	161,500	6,000	5,325	675	0	155,500
SWF	BEAL'S CREEK, BIG SPRING, TX	7,000	1,010	767	145	98	5,990
SWG	FALFURRIAS, TX	18,900	575	171	200	204	18,325
SWG	LOWER RIO GRANDE, ARROYO COLORADO, TX	4,400	800	124	300	376	3,600
SWG	LOWER RIO GRANDE, SOUTH MAIN CHANNEL, TX	115,000	2,300	43	75	2,182	112,700

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PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 91 BUDGET (AUTH PROJECTS)
CONTINUING PED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL							
NPS	CENTRALIA, WA	18,600	1,785	1,321	464	0	16,815
NPS	CHEHALIS RIVER, WA (SOUTH ABERDEEN, COSMOPOLIS)	8,700	1,328	328	1,000	0	6,872
ORH	CABIN CREEK LPP, WV	11,450	1,500	250	500	750	9,950
ORH	ISLAND CREEK BASIN IN AND AROUND LOGAN, WV	67,065	1,600	362	400	838	65,465
NCS	PORTAGE, WI	5,330	1,000	586	414	0	4,330
	TOTALS NO. OF PROJECTS	976,145 36	77,806	41,666	15,767	20,373	898,339
NAVIGATION							
NPA	KODIAK HARBOR, AK	16,830	1,287	1,054	233	0	15,543
SAJ	CANAVERAL HARBOR, SAND BYPASS, FL	500	500	85	415	0	0
SAM	PANAMA CITY HARBOR, FL	6,167	1,290	35	200	1,005	4,877
POD	HILO HARBOR, HI	4,020	450	64	150	236	3,570
ORL	OLMSTED LOCKS & DAM, IL & KY	801,000	16,555	13,023	3,532	0	784,445
MRK	MISSOURI RIVER F&WL MITIGATION, IA, NE, KS & MO	54,700	725	296	429	0	53,975
NCE	MONROE HARBOR, MI	20,878	2,325	817	100	1,408	19,553
NAP	DE RIVER, PHILADELPHIA, PA TO TRENTON, NJ, TIOGA MARINE TERM	1,960	300	149	100	51	1,660
NAP	SALEM RIVER, NJ	9,900	450	107	150	193	9,450
NCB	OLCOTT HARBOR, NY	7,740	1,403	1,036	364	0	6,340
SAW	WILMINGTON HARBOR - NORTHEAST CAPE FEAR RIVER, NC	9,480	1,106	900	206	0	8,374

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PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 91 BUDGET (AUTH PROJECTS)
CONTINUING PED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION							
SAJ	SAN JUAN HARBOR, PR	57,200	2,000	428	900	672	55,200
SWG	BRAZOS ISLAND HARBOR, TX (42-FOOT PROJECT)	23,200	2,050	1,835	215	0	21,150
SWG	CHANNEL TO VICTORIA, TX	16,400	675	491	184	0	15,725
	TOTALS NO. OF PROJECTS	1,029,975 14	31,113	20,370	7,178	3,565	998,862
	GRAND TOTALS NO. OF PROJECTS	2,100,253 55	117,094	66,104	24,600	26,390	1,983,159

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PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 91 BUDGET (AUTH PROJECTS)
PED NEW STARTS (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
MULTIPLE PURPOSE							
SAS	RICHARD B. RUSSELL DAM & LAKE, WILDLIFE MITIGATION, GA & SC	25,730	650	0	300	550	24,880
NPP	COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA	1,150	1,150	0	450	700	0
	TOTALS NO. OF PROJECTS	26,880 2	2,000	0	750	1,250	24,880
	GRAND TOTALS NO. OF PROJECTS	26,880 2	2,000	0	750	1,250	24,880

PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS) SELECTION-1: 34
PED NOT STARTED (THOUSANDS OF DOLLARS) SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
BEACH EROSION							
SAJ	MARTIN COUNTY, FL	650	650	0	0	0	650
SAJ	NASSAU COUNTY, FL	8,510	700	0	0	0	8,510
NCC	CASINO BEACH,IL	2,850	650	0	0	0	2,850
NCE	SKY HARBOR MUNICIPAL AIRPORT, DULUTH MN	80	80	0	0	0	80
	TOTALS NO. OF PROJECTS	12,090 4	2,080	0	0	0	12,090
FLOOD CONTROL							
NAN	WESTCHESTER CO STRMS, NY & BYRAM RIVER, CT - BYRAM RIVER	7,100	1,100	0	0	0	7,100
NCC	DES PLAINES WETLANDS DEMONSTRATION PROJECT	2,200	200	0	0	0	2,200
NCR	UPPER MISSISSIPPI RIVER NAVIGATION STUDY	5,000	5,000	0	0	0	5,000
NCC	WILMINGTON ICE CONTROL DEMONSTRATION	3,000	300	0	0	0	3,000
NCC	LITTLE CALUMET RIVER BASIN (CADY MARSH DITCH), IN	4,800	650	0	0	0	4,800
NCR	GREEN BAY LEVEE #2, IA	5,510	700	0	0	0	5,510
NRO	THURMAN TO HAMBURG, IA PUMPING FACILITIES (WRDA, 1986)	1,100	100	0	0	0	1,100
SWT	PEARSON-SKUBITZ BIG HILL LAKE, (ACCESS ROAD), KS	250	250	0	0	0	250
LMN	WEST BANK - EAST OF HARVEY CANAL, LA	1,600	1,600	0	0	0	1,600
NAB	ANACOSTIA RIVER, MD & DC (REMEDIAL) (1985 ACT)	125	125	0	0	0	125
NCR	ALBERT LEA LAKE, MN	660	660	0	0	0	660
NCR	SCHUYLER COUNTY,MO	50	50	0	0	0	50

PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT STARTED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL							
LMS	STE. GENEVIEVE, MISSOURI	28,400	3,600	0	0	0	28,400
NAP	ABSECON ISLAND, NJ	49,700	850	0	0	0	49,700
NAP	BRIGANTINE ISLAND NJ	14,720	338	0	0	0	14,720
NAP	CAPE MAY POINT, NJ	3,900	237	0	0	0	3,900
NAP	HEREFORD INLET AND FIVE MILE BEACH, NJ	30,900	1,240	0	0	0	30,900
NAP	LONG BEACH ISLAND, NJ	34,900	359	0	0	0	34,900
NAN	ROBINSON'S BRANCH, CLARK AND SCOTCH PLAINS, NJ	5,300	570	0	0	0	5,300
NAP	TOWNSEND INLET & SEVEN MI BE, NJ	35,000	500	0	0	0	85,000
NCS	GRAFTON, ND	14,750	1,000	0	0	0	14,750
NED	BIG RIVER RESERVOIR, RI	5,345	5,000	0	0	0	5,345
SWF	LEWISVILLE LAKE, COTTONWOOD BRANCH BRIDGE, TX	1,670	400	0	0	0	1,670
SWG	LOWER RIO GRANDE, RAYMONDVILLE DRAIN, TX	56,400	1,300	0	0	0	56,400
NPS	LA CONNER, WA (1986 WRDA)	125	125	0	0	0	125
ORH	OCEANA LPP, WV	13,600	1,200	0	0	0	13,600
	TOTALS NO. OF PROJECTS	376,105 26	27,514	0	0	0	376,105
MULTIPLE PURPOSE							
NPA	ALLISON LAKE, AK (VALDEZ HYDROPOWER)	45,000	1,800	0	0	0	45,000
NPA	SCAMMON BAY, AK (HYDROPOWER)	1,700	115	0	0	0	1,700
SWL	NORFORK LAKE, AR (UNIT 3)	0	1,265	0	0	0	0
SWT	BROKEN BOW, OK	1,300	1,300	0	0	0	1,300

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PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT STARTED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
MULTIPLE PURPOSE							
NPP	BLUE RIVER POWERHOUSE, OR (HYDROPOWER)	2,325	2,325	0	0	0	2,325
MRD	SPRINGFIELD WATER INTAKE, SD	2,600	200	0	0	0	2,600
	TOTALS NO. OF PROJECTS	52,925 6	7,005	0	0	0	52,925
NAVIGATION							
SPN	BERKELEY PIER, CA	200	200	0	0	0	200
NAP	C&D CANL-BALT. HAB. CONN. CA\(DHANNELS(DEEPENING) DE & MD	3,000	3,000	0	0	0	3,000
SAJ	HUDSON RIVER, FL	2,610	200	0	0	0	2,610
SAJ	MIAMI HARBOR, MIAMI RIVER, FL (CLEANUP)	5,850	400	0	0	0	5,850
NCE	GRAND HAVEN HARBOR MICH.	11,400	875	0	0	0	11,400
NCE	GREAT LAKES CONNECTING CHANNELS AND HARBORS REPLACEMENT LOCK	166,400	9,500	0	0	0	166,400
SAM	WOLF AND JORDAN RIVERS AND BAYOU PORTAGE, MS	2,138	270	0	0	0	2,138
NAN	NEW YORK HBR & ADJ CHANNELS, CLAREMONT TERMINAL, NJ	1,350	1,350	0	0	0	1,350
NED	GORTON'S POND, WARWICK, RI	150	150	0	0	0	150
NAO	JAMES RIVER 35-FT CHAN 1962 ACT	59,100	5,000	0	0	0	59,100
	TOTALS NO. OF PROJECTS	252,198 10	20,965	0	0	0	252,198
	GRAND TOTALS NO. OF PROJECTS	693,318 46	57,564	0	0	0	693,318

PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT COMPLETED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ABN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
BEACH EROSION							
SAW	FORT FISHER, NC SEC 201, 1976	3,510	1,110	587	0	0	2,923
NAO	VIRGINIA BEACH, VA (HURRICANE PROTECTION)	35,900	3,560	2,860	0	0	33,040
	TOTALS NO. OF PROJECTS	39,410 2	4,670	3,447	0	0	35,963
FLOOD CONTROL							
NPA	BETHEL BANK STABILIZATION, AK	12,450	967	697	0	0	11,753
SPL	HOLBROOK, AZ	11,000	2,039	1,029	0	0	9,971
SWL	VILLAGE CREEK, JACKSON AND LAWRENCE COUNTIES, AR	10	2,500	10	0	0	0
SPK	CACHE CREEK BASIN (OUTLET CHANNEL), CA	11,100	2,330	2,293	0	0	8,807
POD	ALENAIO STREAM, HI	5,880	750	618	0	0	5,262
NCC	MCCOOK AND THORNTON RESERVOIRS (CUP), IL	327,000	6,300	1,971	0	0	325,029
ORL	RUSSELL & ALLISON LEVEE 1938 ACT LAWRENCE	16,600	1,025	52	0	0	16,548
NCC	LAKE GEORGE, HOBART, IN	3,540	480	95	0	0	3,745
SWT	DOUGLASS LAKE, KS	43,800	3,150	904	0	0	42,896
LMK	RED RIVER WATERWAY SHREVEPORT, LA TO VICINITY INDEX, AR	249,000	2,300	2,017	0	0	246,983
NED	MASSACHUSETTS COASTAL, ROUGHANS POINT, REVERE, MA	1,150	1,150	950	0	0	200
LMS	MALINE CREEK, MO	40,490	4,500	2,926	0	0	37,564
MRO	PLATTE RIVER FLOOD & RELATED STREAMBANK EROS CONTROL PROGRAM	3,484	100	200	0	0	3,284
NAP	CORSONS INLET & LUDLUM BEACH,NJ SEC 201,1970	95,500	531	314	0	0	95,186

PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT COMPLETED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL							
NAN	RAHWAY RIVER BASIN, ROBINSON'S BRANCH, AT RAHWAY, NJ	1,050	1,050	850	0	0	200
SAW	BRUNSWICK COUNTY BEACHES, NC	44,100	1,100	529	0	0	43,571
NAP	POTTSTOWN,PA -SEC 201, AUTH 1974	4,710	1,033	487	0	0	4,223
NAP	PROMPTON LAKE, PA (MOD)	45,970	3,900	2,653	0	0	43,317
NAB	WYOMING VALLEY LEVEE RAISING, PA	148,000	7,700	5,929	0	0	142,071
SWG	CYPRESS CREEK, TX	107,000	5,900	214	0	0	106,786
SWF	LAKE WORTH, TARRANT COUNTY, TX	7,400	600	50	0	0	7,350
SWF	MILLICAN LAKE,TX 1968 ACT	112,000	6,120	3,627	0	0	108,373
	TOTALS NO. OF PROJECTS	1,291,534 22	55,522	28,415	0	0	1,263,119
MULTIPLE PURPOSE							
SWL	DARDANELLE LBD, AR, CANE CR BRIDGE REPLACEMENT (WRDA 1986)	1,000	240	100	0	0	900
MRO	\FT YATES HYW BRIDGE, ND 1970 ACT	0	750	617	0	0 -	617
NPP	BONNEVILLE POWER UNITS, OR & WA	2,650	2,650	6	0	0	2,644
SWF	DALLAS FLOODWAY EXTENSION, TRINITY RIVER PROJECT, TX	68,000	2,170	1,134	0	0	66,816
	TOTALS NO. OF PROJECTS	71,650 4	5,810	1,907	0	0	69,743
NAVIGATION							
POD	KIKIAOLA SMALL BOAT HARBOR, KAUAI, HI	2,040	543	193	0	0	1,847
NCE	CROSS VILLAGE HBR, MI.	3,076	740	364	0	0	2,712
NCE	DULUTH - SUPERIOR HARBOR, MN & WI	7,250	750	768	0	0	6,482

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PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT COMPLETED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION							
SAM	PASCAGOULA HARBOR, MS	44,014	1,930	1,823	0	0	42,191
LMS	ST. LOUIS HARBOR, MO & IL	23,530	2,800	943	0	0	22,587
NAN	GOWANUS CREEK CHANNEL, NY	2,540	500	64	0	0	2,476
NCB	LORAIN HARBOR, OH	2,290	700	688	0	0	1,602
NCB	ELK CREEK HARBOR, 1966 ACT	4,210	1,130	102	0	0	4,108
LMK	RED RIVER WATERWAY, SHREVEPORT, LA TO DAINGERFIELD, TX	13,900	13,900	915	0	0	12,985
SWT	RED RIVER WATERWAY,TX,AR,OK&LA (INDEX A* TO DENISON DAM TX)	231,000	5,300	105	0	0	230,895
NCE	GREEN BAY HARBOR 1962 ACT BROWN COUNTY	3,705	730	350	0	0	3,355
	TOTALS NO. OF PROJECTS	337,555 11	29,023	6,315	0	0	331,240
	GRAND TOTALS NO. OF PROJECTS	1,740,149 39	95,025	40,084	0	0	1,700,065

PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED FULLY FUNDED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
BEACH EROSION							
SAJ	ST JOHNS COUNTY, FL	350	350	350	0	0	0
	TOTALS NO. OF PROJECTS	350 1	350	350	0	0	0
FLOOD CONTROL							
SWL	BELL FOLEY LAKE, AR	25	25	25	0	0	0
SPK	GUADALUPE RIVER, CA	52,300	2,450	2,450	0	0	49,850
NAB	WASHINGTON, DC & VICINITY	12,900	2,300	2,300	0	0	10,600
NCR	MUSCATINE ISLAND LEVEE & DRAINAGE DISTRICT, IA	5,430	475	475	0	0	4,955
ORL	TAYLORSVILLE LAKE, KY (FLOYDS FORK BRIDGE REPLACEMENT)	375	60	60	0	0	315
NCE	SAGINAW RIVER,MI	50,960	24,650	24,650	0	0	26,310
MRK	BRUSH CREEK, KANSAS CITY, MO	16,090	2,100	2,100	0	0	13,990
NAP	GREAT EGG HBR INLET & PECK BE, NJ	265,000	570	570	0	0	264,430
NAN	RAMAPO AND MAHWAH RIVERS AT MAHWAH, NJ & SUFFERN, NY	6,810	935	935	0	0	5,875
NAN	SAW MILL RIVER AT ELMSFORD AND GREENBURGH, NY	4,680	950	950	0	0	3,730
NAN	WESTCHESTER CO. STREAMS - MAMARONECK & SHELDRAKE RIVERS, NY	58,200	3,095	3,095	0	0	55,105
MRO	UPPER MISSOURI RIVER STREAMBANK EROSION CONTROL	0	0	0	0	0	0
ORH	LOGAN, OH	6,890	1,226	1,226	0	0	5,664
ORH	MUSKINGUM RIVER, KILLBUCK, OHIO	4,820	134	134	0	0	4,686
ORH	NELSONVILLE, OH	7,920	985	985	0	0	6,935

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PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED FULLY FUNDED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL							
ORL	WEST FORK MILL CREEK LAKE, OH (WINTON WOODS)	9,250	500	500	0	0	7,750
NAB	SUSQUEHANNA BASIN AT HARRISBURG, PA	2,952	2,952	2,952	0	0	0
ORH	CHARLESTON WATERFRONT PARK, WV	1,750	250	250	0	0	1,500
	TOTALS NO. OF PROJECTS	505,352 18	43,657	43,657	0	0	461,695
NAVIGATION							
SPN	NOYO RIVER & HARBOR (CHANNEL EXTENSION)	580	580	580	0	0	0
SPN	NOYO RIVER AND HARBOR (BREAKWATER), CA	6,800	1,442	1,442	0	0	5,358
SPL	REDONDO BEACH (KING HARBOR), CA	5,135	785	785	0	0	4,350
POD	KAWAIHAE SMALL BOAT HARBOR, HI	4,790	336	336	0	0	4,454
NAP	DELAWARE RIVER VICINITY OF CAMDEN, NJ (BECKETT STREET TERMIN	3,540	250	250	0	0	3,290
NAN	NY HARBOR & ADJACENT CHANNELS PORT JERSEY CHANNEL(DEEPENING)	8,700	1,400	1,400	0	0	7,300
NAN	ARTHUR KILL CHANNEL-HOWLAND HOOK MARINE TERMINAL, NY & NJ	35,200	1,100	1,100	0	0	34,100
NAN	SHINNECOCK INLET, NY	18,230	1,000	1,000	0	0	17,230
SWG	NECHES RIV & TRIBS SALTWATER BARRIER, TX 1976	26,527	1,504	1,504	0	0	25,023
	TOTALS NO. OF PROJECTS	109,502 9	8,397	8,397	0	0	101,105
	GRAND TOTALS NO. OF PROJECTS	615,204 28	52,404	52,404	0	0	562,800

CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
BEACH EROSION						
SAJ	MANATEE COUNTY, FL	21,300	5,115	2,320	13,865	0
SAJ	PINELLAS COUNTY, FL	63,600	13,189	2,500	45,712	2,199
SAJ	SARASOTA COUNTY, FL	31,800	2,481	2,067	25,952	1,300
NAB	ATLANTIC COAST OF MARYLAND, MD	192,000	10,725	14,800	166,475	0
NAP	CAPE MAY INLET TO LOWER TOWNSHIP, NJ	65,800	4,368	3,200	53,305	4,927
NAN	SANDY HOOK TO BARNEGAT INLET, NJ	633,000	13,077	29,000	590,923	0
NAN	FIRE ISLAND INLET-JONES INLET,NY 1962 ACT	218,300	9,300	3,700	205,300	0
NCB	PRESQUE ISLE PENINSULA, PA (PERMANENT)	16,400	8,100	4,170	230	3,900
	TOTALS NO. OF PROJECTS	1,242,200 8	66,355	61,757	1,101,762	12,326
FLOOD CONTROL						
SAM	THREEMILE CREEK, MOBILE, AL	16,691	5,416	4,000	7,275	0
SAM	VILLAGE CREEK, JEFFERSON COUNTY, AL	31,965	11,237	3,000	17,728	0
SPL	PHOENIX, ARIZONA AND VICINITY, AZ (STAGE 2)	231,000	170,350	34,300	26,350	0
SWL	FOURCHE BAYOU BASIN, LITTLE ROCK, AR	19,100	10,876	6,900	1,324	0
SPK	CACHE CREEK SETTLING BASIN, CA	14,700	5,629	2,100	6,401	370
SPK	CORTE MADERA CREEK, CA	17,700	11,424	400	0	5,876
SPK	DRY CREEK (WARM SPRINGS) LAKE, CA	361,500	321,495	3,500	1,300	35,205
SPK	FAIRFIELD VICINITY STREAMS, CA	13,800	11,055	2,160	585	0
SPK	GUADALUPE RIVER, CA	52,300	2,550	9,000	40,750	0
SPK	MERCED COUNTY STREAMS, CA	70,500	10,302	1,900	800	57,698

CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
SPK	PAJARO RIVER, CA	7,393	5,395	2,000	0	0
SPK	REDBANK AND FANCHER CREEK, CA	50,400	18,988	7,500	23,912	0
SPK	SACRAMENTO RIVER BANK PROTECTION PROJECT, CA	98,600	79,015	5,000	14,585	0
SPK	SACRAMENTO RIVER FLOOD CONTROL PROJECT, CA	82,215	74,825	1,050	1,490	4,850
SPK	SACRAMENTO URBAN AREA LEVEE RECONSTRUCTION, CA	21,800	4,800	13,470	3,530	0
SPL	SAN LUIS REY RIVER, CA	33,000	13,873	5,500	13,627	0
SPL	SANTA ANA RIVER MAINSTEM, CA	909,000	45,635	65,000	741,965	55,400
SPL	SWEETWATER RIVER, CA	31,200	23,049	5,000	3,151	0
SPK	WALNUT CREEK, CA	67,900	63,100	4,800	0	0
SPK	WILDCAT AND SAN PABLO CREEKS, CA	25,400	12,403	1,700	1,633	9,662
NRO	WESTERLY CREEK, CO	8,500	7,258	1,242	0	0
NAP	DELAWARE COAST PROTECTION, DE	10,300	3,816	130	6,354	0
SAJ	CENTRAL AND SOUTHERN FLORIDA, FL	930,000	354,238	18,800	105,732	451,230
SAJ	DADE COUNTY, FL	50,900	38,854	2,400	9,646	0
SAJ	FOUR RIVER BASINS, FL	160,000	71,256	300	1,839	86,605
SAS	OATES CREEK, RICHMOND COUNTY, GA	9,900	6,633	2,000	1,267	0
LMS	ALTON TO GALE ORGANIZED LEVEE DISTRICTS, IL & MO	107,080	91,582	4,400	2,068	9,030
LMS	EAST ST. LOUIS, IL	31,965	3,661	4,500	23,804	0
NCR	LOVES PARK, IL	18,680	1,505	1,500	15,675	0

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CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
NCC	NORTH BRANCH CHICAGO RIVER, IL	18,800	14,367	4,433	0	0
ORL	EVANSVILLE, IN	51,100	38,607	5,100	7,193	0
NCC	LITTLE CALUMET RIVER, IN	51,400	3,708	3,390	44,302	0
MRK	MISSOURI RIVER LEVEE SYSTEM, IA, NE, KS, & MO	114,416	89,635	905	714	23,162
SWT	GREAT BEND, KS	27,200	10,320	9,000	7,880	0
SWT	HALSTEAD, KS	6,600	1,126	2,200	3,274	0
ORH	YATESVILLE LAKE, KY	99,385	92,810	250	1,303	5,022
LMN	GRAND ISLE AND VICINITY, LA	18,677	15,732	2,659	286	0
LMN	LAKE PONTCHARTRAIN AND VICINITY, LA (HURRICANE PROTECTION)	423,000	251,617	11,655	157,784	1,944
LMN	LAROSE TO GOLDEN MEADOW, LA (HURRICANE PROTECTION)	70,700	58,468	4,210	8,022	0
LMN	NEW ORLEANS TO VENICE, LA (HURRICANE PROTECTION)	160,000	97,077	15,900	47,023	0
LMK	PEARL RIVER, SLIDELL, ST. TAMMANY PARISH, LA	19,900	2,697	730	16,473	0
LMN	WESTWEGO TO HARVEY CANAL, LA (HURRICANE PROTECTION)	55,200	3,135	3,700	48,365	0
NCS	BASSETT CREEK, MN	29,000	18,382	8,505	2,113	0
NCS	CHASKA, MN	24,400	7,094	4,400	12,906	0
NCS	ROCHESTER, MN	64,200	19,211	8,500	36,489	0
SAM	SOWASHEE CREEK, MERIDIAN, MS	13,520	8,369	3,000	2,151	0
SAM	TOMBIGBEE RIVER AND TRIBUTARIES, MS & AL	38,364	25,098	1,000	10,486	1,780

CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
MRK	BLUE RIVER CHANNEL, KANSAS CITY, MO	175,000	39,621	10,100	125,479	0
LMS	CAPE GIRARDEAU-JACKSON, MO	24,860	3,193	7,700	12,364	1,623
NCR	HANNIBAL, MO	5,080	3,470	1,460	150	0
MRO	MISSOURI NATICNAL RECREATIONAL RIVER, NE & SD	21,000	1,531	83	101	19,285
MRO	PAPILLION CREEK AND TRIBUTARIES LAKES, NE	59,500	53,698	2,905	2,897	0
NAP	GREAT EGG HARBOR INLET & PECK BEACH, NJ	269,000	766	3,250	264,984	0
SWA	ACEQUIAS IRRIGATION SYSTEM, NM	51,300	5,650	2,000	43,650	0
SWA	ALBUQUERQUE NORTH DIVERSION CHANNEL, NM	19,520	17,570	200	1,750	0
SWA	RIO GRANDE FLOODWAY, TRUTH OR CONSEQUENCES UNIT, NM	13,200	8,783	1,417	0	0
NAN	YONKERS, NY	13,529	13,019	355	155	0
SAW	B. EVERETT JORDAN DAM AND LAKE, NC	143,400	139,217	1,810	2,373	0
SAW	CAROLINA BEACH AND VICINITY, NC	16,450	9,374	1,190	132	5,754
SAW	FALLS LAKE, NC	182,000	160,974	2,500	18,526	0
NCS	SHEYENNE RIVER, ND	43,500	9,168	8,900	3,607	21,825
NCS	SOURIS RIVER BASIN, ND	92,600	49,538	25,400	17,662	0
ORL	MILL CREEK, OH	155,654	88,104	11,200	56,360	0
SWT	MINGO CREEK, OK	101,300	17,170	13,600	70,530	0
NPP	ELK CREEK LAKE, OR	164,400	100,341	3,000	3,000	58,059
NAB	LOCK HAVEN, PA	64,300	10,019	18,600	35,681	0
ORP	TURTLE CREEK, PA	17,301	16,365	936	0	0

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CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
SAJ	PORTUGUES AND BUCANA RIVERS, PR	339,000	235,752	18,200	22,231	62,817
SWF	BOGGY CREEK, AUSTIN, TX	16,700	14,437	2,263	0	0
SWG	CLEAR CREEK, TX	54,600	11,220	3,700	39,680	0
SWF	COOPER LAKE AND CHANNELS, TX	135,000	99,865	17,400	17,735	0
SWA	EL PASO, TX	109,900	68,133	9,000	32,767	0
SWF	JOE POOL LAKE, TX	188,300	187,222	600	478	0
SWT	LAKE WICHITA, HOLLIDAY CREEK AT WICHITA FALLS, TX	33,700	15,885	11,200	6,615	0
SWF	RAY ROBERTS LAKE, TX	291,000	279,257	4,900	2,343	4,500
SWF	SAN ANTONIO CHANNEL IMPROVEMENT, TX	115,000	103,463	7,100	4,437	0
SWG	SIMS BAYOU AT HOUSTON, TX	178,400	4,348	12,600	161,452	0
SWG	TAYLORS BAYOU, TX	38,400	27,672	4,700	6,028	0
SWG	TEXAS CITY AND VICINITY, TX	40,400	39,552	848	0	0
SPK	LITTLE BELL LAKE, UT	32,700	23,630	9,070	0	0
NAO	RICHMOND, (LOCAL PROTECTION), VA	79,600	23,529	18,000	37,071	0
SAW	ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA	19,900	2,224	2,300	15,376	0
ORH	LEVISA AND TUG FORKS AND UPPER CUMBERLAND RIVER, WV, VA & KY	764,000	270,776	36,300	73,404	383,020
ORP	STONEWALL JACKSON LAKE, WV	231,000	217,640	1,000	25	12,335
MCS	STATE ROAD AND EBNER COULEES, WI	25,500	11,222	6,300	7,978	0
	TOTALS NO. OF PROJECTS	9,090,377 85	4,621,271	585,676	2,566,378	1,317,052

CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: AOM

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
MULTIPLE PURPOSE						
SWL	BEAVER LAKE, AR	4,820	1,085	300	3,435	0
SPK	NEW MELONES LAKE, CA	394,500	361,151	2,000	0	31,349
SAS	RICHARD B. RUSSELL DAM AND LAKE, GA & SC	549,000	508,051	19,000	21,949	0
MRK	HARRY S. TRUMAN DAM AND RESERVOIR, MO	549,000	538,790	3,695	6,715	0
NPP	BONNEVILLE SECOND POWERHOUSE, OR & WA	679,000	658,428	1,900	18,672	0
NPS	CHIEF JOSEPH ADDITIONAL UNITS, WA	395,000	385,563	3,800	5,637	0
NPW	COLUMBIA RIVER JUVENILE FISH MITIGATION, WA, OR & ID	139,000	25,079	15,800	98,121	0
NPW	LOWER SNAKE RIVER FISH & WILDLIFE COMPENSATION, WA, OR & ID	193,000	161,710	18,400	17,890	0
	TOTALS NO. OF PROJECTS	2,908,320 8	2,639,857	64,695	172,419	31,349
NAVIGATION						
SAM	BLACK WARRIOR AND TOMBIGBEE RIVERS, VICINITY OF JACKSON, AL	2,309	230	95	1,984	0
SAM	TENNESSEE-TOMBIGBEE WATERWAY WILDLIFE MITIGATION, AL & MS	66,000	200	20,000	45,800	0
SAM	WILLIAM BACON OLIVER LOCK AND DAM, AL	111,000	84,010	5,500	21,490	0
SWL	MCCLELLAN-KERR AR RIVER NAV. SYSTEM, LOCKS AND DAMS, AR & OK	584,800	561,591	8,500	14,709	0
SPK	OAKLAND HARBOR, CA	54,200	9,866	4,400	39,934	0
SPK	SACRAMENTO RIVER DEEPWATER SHIP CHANNEL, CA	21,400	4,362	3,900	13,138	0
SPN	SAN FRANCISCO BAY TO STOCKTON, CA	123,800	56,864	2,050	64,886	0
SAJ	CANAVERAL HARBOR, FL	18,300	12,679	900	0	4,721

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CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION						
POD	MAALAEA HARBOR, MAUI, HI	6,820	987	4,450	1,383	0
LMS	MELVIN PRICE LOCK AND DAM, IL & MO	742,400	649,129	29,000	55,301	8,970
LMS	MELVIN PRICE LOCK AND DAM, SECOND LOCK, IL & MO	230,000	71,514	75,000	83,486	0
NCR	UPPER MISS RIVER SYSTEM ENV MGMT PROG, IL, IA, MO, MN & WI	154,514	28,650	14,900	110,964	0
LMN	MISSISSIPPI RIVER - GULF OUTLET, LA	523,000	92,263	1,157	7,964	421,616
LMN	MISSISSIPPI RIVER SHIP CHANNEL, GULF TO BATON ROUGE, LA	148,000	11,431	5,500	27,102	103,967
LMK	RED RIVER WATERWAY, MISSISSIPPI RIVER TO SHREVEPORT, LA	1,724,000	1,101,428	39,147	116,595	466,830
LMS	MISS RIVER BTWN THE OHIO AND MO RIVERS (REG WORKS), MO & IL	207,000	146,483	4,800	55,717	0
NED	PORTSMOUTH HARBOR AND PISCATAQUA RIVER, NH & ME	16,725	14,055	75	2,595	0
NAP	BARNEGAT INLET, NJ	31,100	24,003	5,537	1,560	0
NAN	HEMPSTEAD HARBOR, NY	4,400	1,750	2,650	0	0
NAN	KILL VAN KULL AND NEWARK BAY CHANNEL, NY & NJ	268,600	80,433	31,000	69,192	87,975
SAW	AIWW-REPLACEMENT OF FEDERAL HIGHWAY BRIDGES, NC	68,300	24,283	2,900	13,733	27,384
NPP	BONNEVILLE NAVIGATION LOCK, OR & WA	328,000	151,900	69,000	107,100	0
ORP	GRAYS LANDING, LOCK AND DAM 7, MONONGAHELA RIVER, PA	168,000	48,780	31,000	88,220	0
ORP	POINT MARION, LOCK AND DAM 8, MONONGAHELA RIVER, PA & WV	96,400	20,406	28,300	47,694	0

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CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION						
SAC	CHARLESTON HARBOR, SC	71,001	25,156	11,400	34,445	0
SWG	FREEPORT HARBOR, TX	64,400	29,359	11,000	24,041	0
SWG	MOUTH OF COLORADO RIVER, TX	29,600	27,100	1,000	1,500	0
NAO	NORFOLK HARBOR AND CHANNELS, VA	137,400	16,775	100	0	120,525
NPS	GRAYS HARBOR, WA	46,300	16,348	10,500	19,452	0
ORH	GALLIPOLIS LOCKS AND DAM, WV & OH	345,000	165,426	46,300	133,274	0
ORH	WINFIELD LOCK AND DAM, WV	203,000	27,934	16,200	158,866	0
	TOTALS NO. OF PROJECTS	6,595,769 31	3,505,395	486,261	1,362,125	1,241,988
	GRAND TOTALS NO. OF PROJECTS	19,836,666 132	10,832,878	1,198,339	5,202,684	2,602,715

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DAM SAFETY ASSURANCE IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
ORH	SENECAVILLE LAKE, MUSKINGUM RIVER LAKES, OH (DAM SAFETY)	2,450	1,561	835	54	0
NPS	MUD MOUNTAIN DAM, WA (DAM SAFETY)	58,200	10,557	8,700	38,943	0
	TOTALS NO. OF PROJECTS	60,650 2	12,118	9,535	38,997	0
	GRAND TOTALS NO. OF PROJECTS	60,650 2	12,118	9,535	38,997	0

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CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
BEACH EROSION						
SPL	SURFSIDE-SUNSET-NEWPORT BEACH, CA	32,500	16,092	0	0	16,408
SAJ	BREVARD COUNTY,FL 1968 ACT	3,650	2,346	0	0	6,304
SAJ	BROWARD COUNTY, FL (REIMB)	28,200	11,761	0	0	16,439
SAJ	DUVAL COUNTY, FL	27,800	15,468	0	0	12,332
SAJ	INDIAN RIVER COUNTY, FL	31,100	787	0	0	30,313
SAJ	LEE COUNTY, FL	10,700	100	0	0	10,600
SAJ	PALM BEACH COUNTY, FL (ST. JOHNS COUNTY)	16,300	4,109	0	0	12,191
SAJ	PALM BEACH ISLAND, FL (REIMBURSEMENT)	5,800	1,805	0	0	3,995
NED	REVERE BEACH, MA	9,490	2,355	0	0	7,135
NCE	SKY HARBOR A/P EROSION CONTROL, DULUTH, MN	250	0	0	0	250
NCB	MAUMEE BAY STATE PARK, OH	3,130	2,550	0	0	580
NCB	PRESQUE ISLE PENINSULA, PA (NOURISHMENT)	17,069	16,579	0	0	490
NAO	TANGIER ISLAND SHORELINE PROTECTION	2,850	2,850	0	0	0
NAO	VIRGINIA BEACH, VA (REIMB)	16,500	0	0	0	16,500
	TOTALS NO. OF PROJECTS	210,339 14	76,802	0	0	133,537
FLOOD CONTROL						
SAM	FORT TOULOUSE, AL	695	0	0	0	695
SAM	MOUND STATE PARK, AL	780	0	0	0	780
SPK	CHESTER, NORTH FORK FEATHER RIVER, CA - DEFF CORR	3,945	3,380	0	0	465
SPL	HANSEN DAM, CA	980	875	0	0	105

CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
SPK	LOWER SAN JOAQUIN RIVER, CA	22,376	17,025	0	0	5,851
SPK	SACRAMENTO RIV CHICO LAND TO RED BLUFF, CA	25,700	11,372	0	0	14,328
SPL	SANTA PAULA CREEK CHANNEL, CA	37,400	4,791	0	0	32,609
SAJ	DADE COUNTY, NORTH OF HAULOVER BEACH PARK, FL	13,500	8,450	0	0	5,050
POD	AGANA RIVER, GU (1986 WRDA)	4,090	250	0	0	3,840
POD	KAHOMA STREAM, MAUI, HI	10,840	10,350	0	0	490
ORL	GALLATIN COUNTY STREAMBANK EROSION, AREA 1, OHIO RIVER, IL	1,000	87	0	0	913
LMS	HARRISONVILLE & IVY LDG DIST 2,IL	6,829	6,079	0	0	750
NCC	L MICH EDGEWATER AREA, CHICAGO, IL	220	110	0	0	110
NCC	O'HARE RESERVOIR, IL	15,000	2,557	0	0	12,443
NCR	SOUTH QUINCY LEVEE AND DRAINAGE DISTRICT, IL	7,155	0	0	0	7,155
NCR	DES MOINES RECREATION RIVER AND GREENBELT, IOWA	9,740	2,251	0	0	7,489
NCR	MUSCATINE ISLAND LDD, IA	5,430	475	0	0	4,955
NCR	RED ROCK DAM AND LAKE, IOWA (LAND ACQUISITION)	33,600	1,557	0	0	32,043
NCR	WATERLOO, IA (BRIDGES)	1,190	500	0	0	690
ORH	BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA, KY & TN	133,973	111,824	0	0	22,149
ORL	CAMPGROUND LAKE, KY (1974 ACT PH I)	1,400	236	0	0	1,164
ORL	CAVE RUN LAKE,KY 1936,38 ACTS	79,695	74,262	0	0	5,433

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CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
ORH	PAINTSVILLE LAKE, KY	63,450	60,916	0	0	2,534
ORL	SOUTHWESTERN JEFFERSON COUNTY, KY	57,700	57,137	0	0	563
ORL	TAYLORSVILLE LAKE, KY	92,980	83,908	0	0	9,072
LMK	OUACHITA RIVER LEVEES INCLUDING BASCOMVILLE	8,400	3,108	0	0	5,292
LMK	RED RIVER BELOW DENISON DAM	61,516	60,545	0	0	971
NED	ST JOHN RIVER BASIN, ME (SEC 1108, 86 ACT)	3,430	300	0	0	3,130
NED	ROUGHANS POINT, REVERE, MA	7,980	0	0	0	7,980
NED	TOWN BROOK, QUINCY AND BRAINTREE, MA	31,500	3,420	0	0	28,080
NCS	MARSHALL, MN	5,480	0	0	0	5,480
NCS	ROSEAU RIVER, MN (1965 ACT), DUXBY LEVEE, MN (1988 ACT)	24,700	2,325	0	0	22,375
SAM	TALLAHALA CREEK LAKE,MS 1968 ACT	66,501	3,946	0	0	62,555
MRK	BRUSH CREEK , KANSAS CITY , MO.	16,090	2,100	0	0	13,990
MRK	LONG BRANCH LAKE, MO	19,454	18,216	0	0	1,238
LMS	MERAMEC RIVER BASIN, MISSOURI	10,563	0	0	0	10,563
MRK	TRIMBLE WILDLIFE AREA, SMITHVILLE LAKE, MO	1,570	0	0	0	1,570
NAN	RAMAPO AND MAHWAH RIVERS, MAHWAH, NJ AND SUFFERN, NY	6,160	1,200	0	0	4,960
NAN	RARITAN & SANDY HOOK BAYS, NJ 1962 ACT REIMB	9,050	7,793	0	0	1,257
SWA	ABIQUIU DAM (EMERGENCY GATES), NM	3,320	150	0	0	3,170

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CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
SWA	ALAMOGORDO, NM	23,400	1,742	0	0	21,658
SWA	COCHITI WETLANDS, NM	11,000	750	0	0	10,250
SWA	MIDDLE RIO GRANDE FLOOD PROTECTION, BERNALILLO TO BELEN, NM	40,600	1,177	0	0	39,423
NCB	DANSVILLE, NY	907	490	0	0	417
NAH	FIRE ISL INL - MONTAUK POINT,NY 1960/74 ACTS	213,000	9,138	0	0	203,862
NAN	NORTH ELLENVILLE, NY	3,140	450	0	0	2,690
SAW	HAMLET CITY LAKE, NC	3,200	3,155	0	0	45
SAW	RANDLEMAN LAKE, NC	30,800	4,798	0	0	26,002
SAW	WRIGHTSVILLE BEACH, NC	10,347	2,315	0	0	8,032
ORL	CAESAR CREEK LAKE,OH, 1938,58, 61 ACTS	64,781	62,894	0	0	1,887
NCB	CUYAHOGA RIVER BASIN,OH 1970 ACT	21,000	0	0	0	21,000
ORH	MASSILLON BRIDGES, OH (SEC 803, 86 ACT)	1,100	40	0	0	1,060
ORH	MUSKINGUM RIVER, MANSFIELD, OHIO	2,960	0	0	0	2,960
ORH	NELSONVILLE, OH	7,920	0	0	0	7,920
NCB	RENO BEACH HOWARD FARMS, OH	5,770	1,170	0	0	4,600
ORL	WILLIAM H HARSHA LAKE 1938,1956&1961ACTS	55,170	52,023	0	0	3,147
SWT	ARCADIA LAKE, OK	90,400	82,108	0	0	8,292
SWT	LUKFATA LAKE, OK 1958 ACT	39,900	1,425	0	0	38,475
SWT	PARKER LAKE, OK, MUDDY BOGGY CREEK	31,300	1,308	0	0	29,992
SWT	SKIATOOK LAKE OK	121,500	106,258	0	0	15,242

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CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
NPP	LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR & WA	24,900	20,957	0	0	3,943
NPP	WILLAMETTE RIVER BASIN BANK PROTECTION, OR	29,400	24,946	0	0	4,454
ORP	CHARTIERS CREEK,PA 1965 ACT	32,700	26,586	0	0	6,114
NAP	TAMAQUA, PA	10,600	2,050	0	0	8,550
SWT	RED RIVER BASIN CHLORIDE CONTROL, TX & OK(REMAINING RED)	163,000	11,460	0	0	151,540
SWF	TARRANT COUNTY, TONY'S CREEK AND MARINE CREEK, TEXAS	15,800	500	0	0	15,300
ORH	HAYSI LAKE, VA.	132,000	0	0	0	132,000
NAO	VIRGINIA BEACH STREAMS, CANAL NO. TWO, VA	4,800	4,764	0	0	36
NPW	ZINTEL CANYON DAM, WA	6,800	477	0	0	6,323
ORH	KANAWHA RIVER, CHARLESTON, WV	330	25	0	0	305
ORH	KANAWHA RIVER, ST ALBANS,WV	240	25	0	0	215
NCS	LAFARGE LAKE & CHANNEL IMPRV.,WI 1962 ACT	88,000	13,642	0	0	69,358
	TOTALS NO. OF PROJECTS	2,192,547 72	1,003,168	0	0	1,189,379
MULTIPLE PURPOSE						
SWT	EUFAULA LAKE, OKLAHOMA (BRIDGE REPLACEMENT)	2,100	1,520	0	0	580
SWT	FORT GIBSON, OK (POWER UNITS 5 & 6)	0	0	0	0	0
NPP	STRUBE LAKE AND COUGAR ADDITIONAL UNIT, OR	114,000	1,790	0	0	112,210
	TOTALS NO. OF PROJECTS	116,100 3	3,310	0	0	112,790

CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION						
SAM	MOBILE HARBOR, AL	259,550	28,650	0	0	229,900
SAM	TENNESSEE - TOMBIGBEE WATERWAY, AL, MS	1,791,000	1,751,716	0	0	39,284
NPA	KAKE HARBOR, ALASKA	12,960	871	0	0	12,089
LMK	OUACHITA AND BLACK RIVERS, AR & LA	260,000	230,638	0	0	29,362
LMK	RED RIVER EMERGENCY BANK PROTECTION, AR & LA	83,300	79,284	0	0	4,016
SPL	PORT SAN LUIS, SAN LUIS OBISPO HARBOR, CA	12,200	890	0	0	11,310
SPL	REDONDO BEACH (KING HARBOR), CA	5,135	785	0	0	4,350
SPN	RICHMOND HARBOR, CA	12,550	3,424	0	0	9,126
SPL	SAN DIEGO RIVER & MISSION BAY,CA	13,000	11,974	0	0	1,026
SAJ	CROSS FLORIDA BARGE CANAL,FL 1962 ACT	32,000	5,475	0	0	26,525
SAJ	FORT PIERCE HARBOR, FL	5,120	0	0	0	5,120
SAJ	KISSIMMEE RIVER, FL	6,300	6,088	0	0	212
SAJ	MANATEE HARBOR, FL	12,400	8,192	0	0	4,208
SAJ	TAMPA BAY (PORT SUTTON), FL	1,155	125	0	0	1,030
SAJ	TAMPA HARBOR BRANCH CHANNELS, FL	40,300	4,001	0	0	36,299
SAS	SAVANNAH HARBOR, GA	8,800	8,095	0	0	705
NCR	SAVANNA S3H, IL	310	85	0	0	225
ORL	SMITHLAND LOCKS AND DAM, IL, IN & KY	274,100	273,322	0	0	778
NAB	BALTIMORE HARBOR AND CHANNELS, MD & VA (50-FT DEEPENING)	135,300	90,463	0	0	44,837
NCE	CEDAR RIVER HARBOR MICH. 1965 ACT	1,214	265	0	0	949

CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION						
NCE	BEAVER BAY HBR MN 1945 ACT	1,780	293	0	0	1,487
NCE	DULUTH SUPERIOR MN - WI	7,786	768	0	0	7,018
NCE	HEARDING ISLAND INLET, DULUTH HARBOR, MINNESOTA	300	0	0	0	300
NCE	KNIFE RIVER HBR MN	1,242	141	0	0	1,101
NCE	LUTSEN HARBOR,MN 1945 ACT	4,985	357	0	0	4,628
SAM	GULFPORT HARBOR, MS (N)	28,625	2,120	0	0	26,505
NAP	DELAWARE RIVER IN THE VICINITY OF CAMDEN, NJ(BECKETT ST. TER	3,540	250	0	0	3,290
NAN	NY HARBOR & ADJACENT CHANN, PORT JERSEY CHANN (DEEPENING)	8,700	0	0	0	8,700
NCB	BUFFALO HARBOR DRIFT REMOVAL, NY	1,065	0	0	0	1,065
NAN	NEW YORK HARBOR COLLECTION AND REMOVAL OF DRIFT, NY & NJ	59,800	32,143	0	0	27,657
NAN	SHINNECOCK INLET, NY	11,400	6,019	0	0	5,381
SAW	AIWW MASONBORO INLET,NC 1950 ACT	9,750	8,100	0	0	1,650
SAW	MANTEO (SHALLOWBAG) BAY, NC	86,100	6,748	0	0	79,352
NCB	CLEVELAND HARBOR, OH	8,190	618	0	0	7,572
NCB	CUYAHOGA RIVER, OH	1,005	150	0	0	855
NCB	LORAIN HARBOR, OH	2,290	688	0	0	1,602
SWT	BIG AND LITTLE SALLISAW CREEKS, SALLISAW, OKLAHOMA	1,000	430	0	0	570
NED	SEEKONK RIVER, PROVIDENCE,RI	250	0	0	0	250
SWG	GREENS BAYOU BRIDGE, TX	450	0	0	0	450

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CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION						
SWG	WALLISVILLE LAKE, TX	75,000	29,844	0	0	45,156
NAO	JAMES RIVER 35-FT CHANNEL (1962 ACT), VA (SEE ALSO A621 REC)	3,025	0	0	0	3,025
	TOTALS NO. OF PROJECTS	3,281,977 41	2,593,012	0	0	688,965
	GRAND TOTALS NO. OF PROJECTS	5,800,963 130	3,676,292	0	0	2,124,671

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DAM SAFETY ASSUPANCE NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
NCS	LK ASHTABULA & BALDHILL DAM, SHEYENNE R, ND (DAM SAFETY)	29,400	3,131	0	0	26,269
	TOTALS NO. OF PROJECTS	29,400 1	3,131	0	0	26,269
MULTIPLE PURPOSE						
SAC	COOPER RIVER SEISMIC MODIFICATION, SC	29,500	29,243	0	0	257
	TOTALS NO. OF PROJECTS	29,500 1	29,243	0	0	257
	GRAND TOTALS NO. OF PROJECTS	58,900 2	32,374	0	0	26,526

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MISSISSIPPI RIVER AND TRIBUTARIES
PRECONSTRUCTION ENGINEERING AND DESIGN IN FY 91 BUDGET (AUTH PROJECTS)
CONTINUIN' PED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL							
LMM	HELENA ARKANSAS AND VICINITY, AR	13,300	1,500	775	500	225	11,800
LMM	LOWER WHITE RIVER (BIG CREEK AND TRIBS), AR.	45,100	2,200	1,392	385	423	42,900
	TOTALS NO. OF PROJECTS	58,400 2	3,700	2,167	885	648	54,700
	GRAND TOTALS NO. OF PROJECTS	58,400 2	3,700	2,167	885	648	54,700

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MISSISSIPPI RIVER AND TRIBUTARIES
PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT STARTED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
NAVIGATION							
LMK	VICKSBURG HARBOR, MS	55,900	1,600	0	0	0	55,900
	TOTALS NO. OF PROJECTS	55,900 1	1,600	0	0	0	55,900
	GRAND TOTALS NO. OF PROJECTS	55,900 1	1,600	0	0	0	55,900

02/15/90 07:10

MISSISSIPPI RIVER AND TRIBUTARIES
PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED NOT COMPLETED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDUL
FLOOD CONTROL							
LMM	WEST MEMPHIS ARKANSAS & VICINITY, AR	1,100	1,100	1,083	0	0	17
LMM	ST. JOHNS BAYOU AND NEW MADRID FLOODWAY, MO	77,000	3,600	3,270	0	0	73,730
	TOTALS NO. OF PROJECTS	78,100 2	4,700	4,353	0	0	73,747
	GRAND TOTALS NO. OF PROJECTS	78,100 2	4,700	4,353	0	0	73,747

02/15/90 07:10

MISSISSIPPI RIVER AND TRIBUTARIES
PRECONSTRUCTION ENGINEERING AND DESIGN NOT IN FY 91 BUDGET (AUTH PROJECTS)
PED FULLY FUNDED (THOUSANDS OF DOLLARS)

SELECTION-1: 34
SELECTION-2: ADN

DIST	NAME	TOT EST FED COST	FED COST OF PED	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDUL
FLOOD CONTROL							
LMK	BUSHLEY BAYOU, LA	1,600	1,600	1,600	0	0	
LMN	LA STATE PEN. LEVEE	1,200	1,200	1,200	0	0	
LMM	HORN LAKE CREEK & TRIBUTARIES (INCLUDING COW PEN CREEK)MS&TN	3,030	725	725	0	0	2,305
LMM	HARRIS FORK CREEK, TN & KY	13,800	1,100	1,100	0	0	12,700
	TOTALS NO. OF PROJECTS	19,630 4	4,625	4,625	0	0	15,005
	GRAND TOTALS NO. OF PROJECTS	19,630 4	4,625	4,625	0	0	15,005

02/15/90 11:25

MISSISSIPPI RIVER AND TRIBUTARIES
CONTINUING CONSTRUCTION IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 4
SELECTION-2: A

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
LMV	CHANNEL IMPROVEMENT, AR, IL, KY, LA, MS, MO & TN	3,257,000	1,871,684	109,875	1,275,441	0
LMV	MISSISSIPPI RIVER LEVEES, AR, IL, KY, LA, MS, MO & TN	1,310,000	636,303	20,300	651,397	0
LMP	ST. FRANCIS BASIN, AR & MO	374,000	286,927	10,200	76,873	0
LMK	TENSAS BASIN, AR & LA	499,000	257,429	2,000	155,215	74,356
LMN	ATCHAFALAYA BASIN, FLOODWAY SYSTEM, LA	150,000	30,973	11,700	62,327	45,000
LMN	ATCHAFALAYA BASIN, LA	1,470,000	637,483	32,000	800,517	0
LMN	MISSISSIPPI DELTA REGION, LA	61,500	15,773	4,260	30,025	11,442
LMK	YAZOO BASIN, MS	1,578,000	565,551	29,225	905,210	78,014
LMM	MEMPHIS HARBOR (ENSLEY BERM) TN	23,100	19,737	1,700	1,663	0
LMM	NONCONNAH CREEK, TN & MS	16,600	3,243	3,500	9,351	506
LMM	WEST TENNESSEE TRIBUTARIES, TN	120,000	39,634	100	80,266	0
	TOTALS NO. OF PROJECTS	8,949,200 11	4,366,737	224,860	4,048,285	209,318
NAVIGATION						
LMM	HELENA HARBOR, PHILLIPS COUNTY, AR	33,800	5,291	300	13,509	14,200
	TOTALS NO. OF PROJECTS	33,800 1	5,291	800	13,509	14,200
	GRAND TOTALS NO. OF PROJECTS	3,883,000 12	4,372,023	225,660	4,061,794	223,518

CORPS REQUEST TO OMB

Mr. BEVILL. Prepare for the record the amounts the Corps requested from OMB, by account.

General HATCH. The Corps requested $3,429,000,000, from OMB.

(The information follows:)

FISCAL YEAR 1991 RECOMMENDATIONS TO OMB
(Dollars in Thousands)

Appropriation Title	Requested		Approved	
General Investigations	150,000		135,400	
Construction, General	1,284,000	a/	1,226,000	c/e/
Operations & Maintenance, General	1,461,000	b/	1,389,500	d/
Regulatory Program	78,000		75,100	e/
Flood Control, MR&T	341,000		334,500	
General Expenses	135,000		136,100	
Flood Control & Coastal Emergencies	25,000		25,000	
Permanent Appropriations	12,000		12,000	
Total Appropriation Request	3,486,000		3,333,600	

a/ Includes $131 million from the Inland Waterways Trust Fund.
b/ Includes $190 million from the Harbor Maintenance Trust Fund.
c/ Includes $132 million from the Inland Waterways Trust Fund.
d/ Includes $485.5 million from the Harbor Maintenance Trust Fund.
e/ Excludes $2 million under Construction, General and $4 million under the Regulatory Program for the bridge program proposed to be transferred from the Coast Guard under legislation to be submitted at a later date.

CONTINUING AUTHORITIES PROGRAMS
PROJECTS PROPOSED FOR FUNDING

Mr. BEVILL. Provide for the record a listing of the Small Projects Programs indicating the current year allocation, the FY 1991 budget request and the amount required to complete the project.

Gen. HATCH. We can provide that. However, due to the dynamic nature of these programs, the values shown represent the Corps of Engineers estimate as of January 31, 1990. As studies proceed and costs and benefits are determined, and local interests' willingness to cost share in accord with the terms of P.L. 99-662 is determined, some activities will be terminated and others, not listed, may be initiated. Furthermore, we are managing each program to insure that only projects having predominately flood control and commercial navigation outputs proceed to construction.

[The information follows:]

ACTUAL AND PENDING ALLOCATIONS FOR SMALL PROJECTS PROGRAMS
(Funds Shown In $1,000)

Program/Category/Item	FY 1990	FY 1991
EMERGENCY STREAMBANK AND SHORELINE PROTECTION (Section 14)		
Detailed Project Studies	1,600	1,800
Plans and Specifications		
QUINCE ROAD BRIDGE, TN	10	
REPUBLICAN R CLIFTON KS SEWAGE LAGOONS	26	
102 ROAD AND BRIDGE, NODAWAY CO., MO	15	
CANADAWAY CREEK SEWERLINE, FREDONIA, NY	15	
CUYAHOGA R., BRECKSVILLE RD, INDEPENDENCE, OH	12	
MILL CREEK, WARRENSVILLE, OH	15	
ST JOSEPH CHRISTIAN LIFE CENTER, CLEVELAND, OH	31	
THATCHER BROOK, HILL STREET BRIDGE, GOWANDA, NY	32	
JORDAN RIVER, EAST JORDAN, MI	2	
SHEBOYGAN, WI (60" SANITARY SEWER)	36	
RAINY RIVER HISTORIC SITE AT GRAND MOUND, MN	35	
ZUMBRO RIVER, GENOA, MN	6	
HOKAH, MN	30	
FARMINGTON R, SIMSBURY, CT	10	
TOWN RIVER BAY, QUINCY, MA	26	
NEAH BAY, CLALLAM COUNTY, WA	25	
SHEFFIELD WATER INTAKE, AL	28	
BOROUGH OF MT. PLEASANT, SHUPE RUN, PA	24	
BOGGY BAYOU SHORELINE, VALPARAISO, FL	20	
NEUSE RIVER, ORIENTAL, NC	20	
PUEBLO STATE RECREATION AREA, PUEBLO, CO	12	
PROJECTS NOT YET IDENTIFIED	1,470	1,400
Subtotal Plans and Specifications	1,900	1,400
Construction		
PRESCOTT, AR	161	
WEST NISHNABOTNA RIVER, OAKLAND, IA	26	
FT LUPTON WASTEWATER LAGOONS, CO	39	
YELLOWSTONE RIVER, LIVINGSTON, I-90, MT	42	
LITTLE MISSOURI RIVER, MEDORA LAGOONS, ND	11	
MILK R., BLAINE CO, MT (FINLEY & UNRUH BRIDGES)	1	
ISLE OF WIGHT BAY, OCEAN CITY,MD	7	
FORT MIFFLIN, PA	148	
SPERRY RD, KIRTLAND HILLS, OH	135	
JORDAN RIVER, EAST JORDAN, MI	75	
DES MOINES RIVER, ROAD J-12, WAPELLOCO., IA	104	
ST JOSEPH CHRISTIAN LIFE CENTER, CLEVELAND, OH	201	
DES MOINES RIVER, FARMINGTON, SEWER STATION, IA	20	
DEIST ROAD, MIDDLEBASS ISLAND, OH	283	
BAR LAKE, MANISTEE, MI	90	
MARYSVILLE, MI	157	
RED RIVER, BRECKENRIDGE, MN	12	

ACTUAL AND PENDING ALLOCATIONS FOR SMALL PROJECTS PROGRAMS
(Funds Shown In $1,000)

Program/Category/Item	FY 1990	FY 1991
EMERGENCY STREAMBANK AND SHORELINE PROT. (Section 14) - Cont.		
Construction - Cont.		
FT. TRUMBULL BEACH, MILFORD, CT	10	
JARDIN MANOR, KY	81	
APPLE CREEK, OH	45	
BOROUGH OF MUNHALL, PA	86	
INDIAN CREEK, MORGAN CO., IN	47	
WILDCAT CREEK, COUNTY ROAD 7 EAST, IN	25	
WABASH RIVER, VIGO COUNTY, IN	91	
WABASH RIVER, VIGO COUNTY, LITTLE ROAD, IN	77	
MASEFAU BAY, AMERICAN SAMOA	367	
PONCE REGIONAL WWTP, PR	30	
FT CLINCH STATE PARK, FL	380	
WHORTONS BEND RD., COOSA RIVER, AL	50	
ALAMEDA STREET, SANTAFE, AZ	261	
PROJECTS NOT YET IDENTIFIED	3,238	6,800
Subtotal Construction	6,300	6,800
Total Program (Section 14)	9,800	10,000
MITIGATION FOR NAVIGATION PROJECTS (Section 111)		
Reconnaissance Studies	150	150
Detailed Project Studies		
CORNUCOPIA HBR., WI	25	10
PROJECTS NOT YET IDENTIFIED	35	80
Subtotal Detailed Project Studies	60	90
Plans and Specifications	40	60
Construction		
SAXON HARBOR, WI	35	
PROJECTS NOT YET IDENTIFIED	—	200
Subtotal Construction	35	200
Total Program (Section 111)	285	500

ACTUAL AND PENDING ALLOCATIONS FOR SMALL PROJECTS PROGRAMS
(Funds Shown In $1,000)

Program/Category/Item	FY 1990	FY 1991
NAVIGATION (Section 107)		
Reconnaissance Studies	1,600	1,800
Detailed Project Studies		
GARDNERS BASIN, NJ	55	15
WILLS HOLE THOROFARE, NJ	50	
SAUGUS RIVER, SAUGUS, MA	5	
PROVINCETOWN HBR, MA	15	
PLYMOUTH HBR, PLYMOUTH, MA	35	
WINTHROP HBR, WINTHROP, MA	55	20
GREEN HBR, MARSHFIELD, MA	40	
PINE PT. HBR, SCARBOROUGH, ME	10	
WOOD ISLAND HBR, ME	15	
PERKINS COVE, OGUNQUIT, ME	20	
BASS HBR, TREMONT, ME	30	
GLOUCESTER HBR, GLOUCESTER, MA	20	
LARSEN BAY, AK	25	
WESTPORT, OR - PUGET ISLAND, WA	40	
EAST HAWAII LIGHT-DRAFT NAVIGATION FACILITY, HI	40	
BENNER BAY, ST. THOMAS, VI	15	
AGUADILLA HARBOR, PR	24	
VALONA HARBOR, MCINTOSH CO, GA	10	
WILMINGTON HARBOR, TURNS & BENDS, NC	67	13
WILMINGTON HARBOR, PASSING LANE, NC	98	19
LARKSPUR FERRY NAVIGATION CHANNEL, CA	8	
PROJECTS NOT YET IDENTIFIED	923	1,733
Subtotal Detailed Project Studies	1,600	1,800
Plans and Specifications		
RUDEE INLET VIRGINIA BEACH, VA	37	
CHIGNIK, AK	23	
BROOKGREEN GARDENS CANAL, GEORGETOWN CO., SC	10	
PROJECTS NOT YET IDENTIFIED	1,130	1,500
Subtotal Plans and Specifications	1,200	1,500
Construction		
YELLOW BEND PORT, AR	2,718	
TONGUE POINT, OR	500	
BROOKGREEN GARDENS CANAL, SC	64	
NEW RIVER INLET, NC	138	
SOUTH BRUNSWICK RIVER, GLYNN CO, GA	751	
LAKE CHARLES SHIP CHANNEL, LA		1,047
BAYOU GRANDE CAILLOW, LA		1,276
RUDEE INLET, VA		702
PROJECTS NOT YET IDENTIFIED	2,629	6,875
Subtotal Construction	6,800	9,900
Total Program (Section 107)	11,200	15,000

ACTUAL AND PENDING ALLOCATIONS FOR SMALL PROJECTS PROGRAMS
(Funds Shown In $1,000)

Program/Category/Item	FY 1990	FY 1991
BEACH EROSION (Section 103)		
Reconnaissance Studies	700	700
Detailed Project Studies		
PROSPECT BCH, WEST HAVEN, CT	22	
CANNERIES TO BREAKERS PT, AMERICAN SAMOA	168	
LAULIITUAI TO AUMI, TUTUILA, AM SAMOA	80	
NUA TO AMALUIA, TUTUILA, AM SAMOA	30	
PUERTO NUEVO BEACH, PR	39	
PROJECTS NOT YET IDENTIFIED	261	600
Subtotal Detailed Project Studies	600	600
Plans and Specifications		
SIMS PARK, EUCLID, OH *	70	
PROJECTS NOT YET IDENTIFIED	130	200
* Subtotal Plans and Specifications	200	200
Construction		
SEA BLUFF BEACH, WEST HAVEN, CT	306	
SAND ISLAND, HI	900	515
LEPUA AREA, AMERICAN SAMOA	1,237	
PROJECTS NOT YET IDENTIFIED	457	1,485
Subtotal Construction	2,900	2,000
Total Program (Section 103)	4,400	3,500
SNAGGING AND CLEARING (Section 208)		
Detailed Project Studies	400	500
Plans and Specifications	51	100
Construction		
RED RIVER OF THE NORTH - FARGO, ND	150	84
SALAMONIE RIVER, JAY AND BLACKFORD COUNTIES, IN	129	
WHITE RIVER, ST. PAUL, MADISON CO., AR	20	
PROJECTS NOT YET IDENTIFIED	___	316
Subtotal Construction	299	400
Total Program (Section 208)	750	1,000

ACTUAL AND PENDING ALLOCATIONS FOR SMALL PROJECTS PROGRAMS
(Funds Shown In $1,000)

Program/Category/Item	FY 1990	FY 1991
FLOOD CONTROL PROJECTS (Section 205)		
Reconnaissance Studies	5,500	6,000
Detailed Project Studies		
NAYFIELD CREEK AND TRIBS., KY	30	
INDIAN CREEK, HASTINGS, IA	28	
PALMERTON LOCAL FLOOD CONTROL PROJECT, PA	60	15
LIBERTYVILLE ESTATES, IL	90	69
WARRENTON DIKING DISTRICT NO. 1, OR	2	
CEDAR RIVER, WA	20	
SALMON RIVER, ID	220	140
MALAELOA STREAM, AMERICAN SAMOA	140	
VAIPITO STREAM, AMERICAN SAMOA	170	
KAWAINUI MARSH, OAHU, HI	170	30
TURPENTINE RUN, ST. THOMAS, VI	130	
RIO ANTON RUIZ, PUNTA SANTIAGO, PR	85	53
RIO MANATI, BARCELONETA, PR	110	135
GREAT COHARIE CREEK, SAMPSON CO., NC	45	
MASON CREEK, SALEM & ROANOKE COS., VA	40	
SANDY RIVER, DANVILLE, VA	40	
BITTER CREEK, ROCK SPRINGS, WY	275	
RIALTO CHANNEL, CA	87	
PETALUMA RIVER, CA	250	
JOHNSON CREEK, ARLINGTON - GRAND PRAIRIE, TX	16	
SULPHUR BRANCH, EULESS, TX	53	
PROJECTS NOT YET IDENTIFIED	939	3,558
Subtotal Detailed Project Studies	3,000	4,000
Plans and Specifications		
CHAUVIN BAYOU, LA	240	
MILLINGTON, TN	64	
BLUE RIVER BASIN, OVERLAND PARK, KS	90	
SWAN CREEK, TOLEDO, OH	78	
S.E. OTTAWA, IL	122	
MAD R, WOODTICK, WATERBURY, CT	55	10
WEST RIVER, NEW HAVEN, CT	40	
LOWER GREEN RIVER, WA	204	
ROCKY FORK AND TOUBY RUN, MANSFIELD, OH	248	
LANCASSANGE CREEK, CLARK CO, IN	15	
GARAPAN AREA, NORTHERN MARIANAS	15	
SOCASTEE CREEK, HORRY CO., SC	14	
RIO CIBUCO, VEGA BAJA, PR	50	
GREENS CREEK, PETAL, MS	50	
MILL CREEK, SUMRALL, MS	10	
PLACENTIA CANAL, SAVANNAH, GA	70	
LAKE ELSINORE, CA	130	
LITTLE WALNUT CREEK, AUSTIN, TX	130	
PROJECTS NOT YET IDENTIFIED	436	2,990
Subtotal Plans and Specifications	2,061	3,000

ACTUAL AND PENDING ALLOCATIONS FOR SMALL PROJECTS PROGRAMS
(Funds Shown In $1,000)

Program/Category/Item	FY 1990	FY 1991
FLOOD CONTROL PROJECTS (Section 205) - Cont.		
Construction		
CANAL 43, AR	627	
POQUESSING CREEK, PA	35	
MIDDLE RIVER, ARGYLE, MN	185	
MALHEUR LAKE, OR	2,475	
WHITEWATER RIVER, HAGERSTOWN, IN	263	
DRY CREEK, GOODLETTSVILLE, TN	90	
KAHAWAINUI STREAM, HI	380	
SOCASTEE CREEK, SC	473	
MILL CREEK, DALTON, GA	235	
CRIBBS MILL CREEK, TUSCALOOSA, AL	1,555	
SILVER CR, ROME, GA	336	
ESLAVA CREEK, MOBILE, AL	1,095	
TALLAHALA CREEK, LAUREL, MS	647	
NORTH CANADIAN WWTP, OKLAHOMA CITY, OK	249	
CHAUVIN BAYOU, LA	400	1,520
LODGEPOLE CREEK, SIDNEY, NE	200	1,877
WEST RIVER, NEW HAVEN, CT	2,000	2,200
RIVERDALE, WEST SPRINGFIELD, MA	310	300
ISRAEL RIVER, LANCASTER, NH	35	150
UPPER GORDONS CREEK, HATTIESBURG, MS	1,000	3,140
PROCTOR CREEK, ATLANTA, GA	849	100
DELAWARE RIVER, PORT JERVIS, NY		764
CAZENOVIA CREEK ICE CONTROL STRUCTURE, NY		1,000
PROJECTS NOT YET IDENTIFIED		5,949
Subtotal Construction	13,439	17,000
Total Program (Section 205)	24,000	30,000

CIVIL ACTIVITIES IN FOREIGN COUNTRIES

Mr. BEVILL. Please bring the Committee up to date on the work the Corps is doing in civil functions in foreign countries.

General HATCH. Mr. Chairman, our civil activities in foreign countries are much the same as they were last year, and I would like to outline for the Committee the eight major categories of those activities, with a few examples:

(The information follows:)

I. **Activities in Support of U.S. Treaty Commitments with Foreign Governments.**

An example of these activities is the Army Corps of Engineers support for U.S. treaty commitments such as those relating to the International Joint Commission established pursuant to the 1909 Boundary Waters Treaty between the United States and Canada, and the International Boundary and Water Commission established pursuant to a treaty between the United States and Mexico in 1945.

II. **Activities in Support of Foreign Water Development Projects Which Have Been Authorized by the United States Congress.**

An example of these activities is Army Corps of Engineers involvement in various water projects in states and provinces along the U.S. - Canadian border, such as the proposed Rafferty and Alameda dam projects in Saskatchewan that benefit the Souris River Basin in North Dakota . With regard to the Souris River Basin Project, on October 26, 1989, the United States and Canada signed an agreement which, consistent with U.S. legislation, will provide U.S. payments to Canada in return for flood control storage and other benefits associated with the Rafferty and Alameda dams. The signing of this agreement culminated years of complex negotiations with the Canadian Government.

02/15/90 11:25

MISSISSIPPI RIVER AND TRIBUTARIES
DAM SAFETY ASSURANCE IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 4
SELECTION-2: A

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
LMK	SARDIS DAM, MS (DAM SAFETY ASSURANCE)	29,300	6,362	555	22,383	0
	TOTALS	29,300	6,362	555	22,383	0
	NO. OF PROJECTS	1				
	GRAND TOTALS	29,300	6,362	555	22,383	0
	NO. OF PROJECTS	1				

02/15/90 11:25

MISSISSIPPI RIVER AND TRIBUTARIES
CONSTRUCTION PROJECTS NOT IN FY 91 BUDGET
(THOUSANDS OF DOLLARS)

SELECTION-1: 4
SELECTION-2: A

DIST	NAME	TOT EST FED COST	ALLOC TO DATE	FY 91 BUDGET	BALANCE TO COMPLETE SCHEDULED	BALANCE TO COMPLETE UNSCHEDULED
FLOOD CONTROL						
LMM	AUGUSTA TO CLARENDON LEVEE, LOWER WHITE RIVER, AR	4,601	1,787	0	0	2,814
LMM	CACHE RIVER BASIN, AR.	137,000	10,170	0	0	126,830
LMM	CLARENDON LEVEE, LOWER WHITE RIVER, AR	1,576	570	0	0	1,006
LMM	EIGHT MILE CREEK, AR	9,100	1,793	0	0	7,307
LMM	L'ANGUILLE RIVER, AR.	15,100	4,057	0	0	11,043
LMK	LOWER ARKANSAS RIVER, AR SOUTH BANK	21,000	15,676	0	0	5,324
LMM	WEST MEMPHIS, AR & VICINITY	13,500	1,083	0	0	12,417
LMM	WEST KENTUCKY TRIBUTARIES, KY	24,000	1,200	0	0	22,800
LMK	LWR RED RIV-SOUTH BANK LEVEES,LA 1928,41,65	22,900	13,842	0	0	4,058
LMN	MISSISSIPPI & LOUISIANA ESTUARINE AREAS	57,000	3,777	0	0	53,223
LMM	HORN LAKE CREEK & TRIBUTARIES (INCLUDING COW PEN CREEK)MS&TN	2,142	0	0	0	2,142
LMM	MUD LAKE PUMPING STATION, TN	5,120	457	0	0	4,663
LMM	REELFOOT LAKE-LAKE NO. 9, TN & KY	10,500	8,365	0	0	2,135
	TOTALS NO. OF PROJECTS	323,539 13	67,777	0	0	255,762
	GRAND TOTALS NO. OF PROJECTS	323,539 13	67,777	0	0	255,762

III. **Activities in Support of State Department-Approved International Agreements Related to Mutually Beneficial Scientific and Technical Exchange Programs and Other State Department International Scientific and Technical Initiatives.**

An example of these activities is Army Corps of Engineers participation in the Protocol on Water Resources under the United States - People's Republic of China Agreement on Cooperation in the Field of Science and Technology. This Protocol is scheduled to expire in 1991, and one of the final exchanges of information is planned for the spring of 1990.

Another example of these activities is Corps participation with the Department of State and the Environmental Protection Agency in the Intergovernmental Panel on Climate Change, IPCC, which was initiated by the World Meteorological Organization and the United Nations Environmental Program. The Corps' main involvement in this program concerns the study of impacts of climate change, or "global warming," and the development of response strategies for dealing with water resources and the coastal zones. A final IPCC report is due in September 1990, and the conclusion of related international conventions constitutes the IPCC's long term goal.

IV. **Activities Related to Reimbursable Technical Assistance Projects for U.S. Government Agencies Overseas.**

An example of these activities is the continuing work by the Corps for the Voice of America in modernizing its radio transmitter facilities in various countries.

V. **Activities Related to Reimbursable Technical Assistance Projects for Foreign Governments and International Organizations.**

An example of these activities is Corps participation in an Agreement signed on September 21, 1989, between the United States and the Federated States of Micronesia regarding various forms of technical assistance to be provided by the Department of the Army which will be paid for by the Government of the Federated States of Micronesia.

VI. **Activities Related to Foreign Research and Development Contracts.**

An example of these activities is participation by the Corps of Engineers in research and development contracts with consultants from foreign institutes, universities, and corporations, such as the continuing contract with a professor at the University of British Columbia on earthquake engineering and effective stress analysis.

VII. **Participation on Behalf of the U.S. Government in Various International Organizations.**

An example of these activities is Corps assistance provided to the Department of State in representing the U.S. Government at official meetings of international organizations such as the Permanent International Association of Navigation Congresses.

Another example of these activities is Corps assistance to the Department of State in representing the U.S. Government in meetings in preparation for the July 1989 Paris Economic Summit of the Seven Industrialized Nations concerning flood control programs for Bangladesh.

VIII. **Attendance by Army Corps of Engineers Scientists and Engineers at Meetings of International Professional Organizations.**

An example of these activities is attendance by Army Corps of Engineers scientists and engineers at meetings of the International Conference on Large Dams.

Mr. BEVILL. How many Corps employees are engaged in overseas work?

General HATCH. Although there are numerous Army Corps of Engineers employees engaged in overseas work, particularly in conjunction with foreign military sales cases or in support of U.S. Forces stationed abroad, there are very few Army Corps employees engaged in non-military overseas work on a full-time basis. At present, in addition to three local-hire employees, there are seven Corps employees working in Morocco on a full-time basis to manage a construction project for the Voice of America, in support of its continuing program to establish or improve its overseas transmitter facilities.

Other Army Corps of Engineers employees are temporarily assigned overseas, usually for no more than several weeks, for short studies or consultations.

HOPPER DREDGE WORKLOAD

Mr. BEVILL. How much of the Corps hopper dredge work will go to the industry in FY 1990 and FY 1991? How much work will be done by Corps hopper dredges in FY 1990 and FY 1991?

General HATCH. This table provides the breakout of estimated Corps of Engineers hopper dredge work in FY 1990 and FY 1991 by industry dredges and government dredges and is being provided for the record. We would emphasize that these estimates are subject to change, based on prevailing project conditions, regional drought impacts, and other factors.

HOPPER DREDGE WORK
(Estimates)

	Industry		Government		Total	
	$(M)	CY(M)	$(M)	CY(M)	$(M)	CY(M)
FY 1990	65	31	41	30	106	61
FY 1991	56	35	43	33	99	68

WORKFORCE MANAGEMENT ANALYSIS

Mr. BEVILL. Please describe the workforce management analysis you plan to undertake in coordination with OMB.

General HATCH. In Febuary or March 1990, OMB will initiate an FTE/Workforce Management Analysis of the Civil Works program. This analysis is a cooperative effort, intended to develop relationships between budgets, manpower utilization and Civil Works products and services, and avoid duplicating data that already exists. Results of the study will be incorporated in the FY 1992 Budget. We are scheduled to meet with our OMB examiner in the near future to more clearly define the boundaries of this analysis.

REMR SAVINGS

Mr. BEVILL. You state in your testimony that you expect to realize $200 million in savings over the next five years as a result of the first REMR program. Can you document those savings?

General HATCH. The savings from application of REMR technology we project for the next five years include:

- A REMR developed option for the construction of a secondary stilling basin immediately downstream of the existing stilling basin to repair a scour area will result in significant savings over the cost of a replacement stilling basin. Savings $16.3 million for first use.

- Results for our REMR research showed that our stability criteria for existing concrete gravity structures on rock was overly conservative. Our stability criteria has now been changed through the issuance of an Engineering Technical Letter. Savings of $20 million were realized due to the elimination of planned structural modifications at only three locks (Eisenhower, Snell, and Troy). Additional savings will be realized as the new criteria is applied to other locks.

- REMR technology on the sealing of permeable jetties is being used to seal the South Jetty at Port Everglades, Florida. Savings are attributed to the use of this technology over the conventional use of chinking material and a covering layer of armor stone. Savings $0.3 million for first use.

- REMR technology for an underwater concrete mixture and guidance for placement in underwater repair situations was used by the Rock Island District for the repair of the eroded end sill at Red Rock Dam. Savings are from elimination of dewatering costs. Savings $0.5 million for first use.

- The application of the Blended Chemical High Temperature to cleaning of relief wells will extend the typical period for cleaning from 3 years to 4 or 5 years. Annual savings of $500,000 are expected.

- Concrete surface treatment: numerous materials are being promoted for surface treatment of concrete structures and no definitive guidance is available for the selection and application of these materials. Our research has shown a wide variation in the effectiveness of these materials with some materials providing no protection at all. Tests results were used to produce guidance for the selection and application of these types of materials. The estimated annual savings that will result from the use of this guidance is $300,000 to $500,000 per year.

ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT

Mr. Bevill. Please define "environmentally sustainable development."

General Hatch. No single blueprint of sustainable development will be found, as ecological, social, and economic conditions differ widely. Therefore, sustainable development should be thought of as a continuing process of economic and social development that meets the needs of the present without compromising the ability of future generations to meet their own needs. From our perspective, the concept of sustainability is grounded in four fundamental notions:

- Mankind is part of nature. Our existence depends on our ability to draw sustenance from a finite natural world without destroying the systems that regenerate that world.

- Given the realities of population growth and human nature, economic development is, in fact, necessary to achieve sustainability.

- Economic activity must account for its own environmental costs. If development is not environmentally sustainable, it is not economically sustainable either; the converse is also true.

- Sustainability establishes a requirement for anticipating and balancing the future life cycle consequences-- economic, technical, social, and environmental-- of all proposed development.

Thus, sustainable development is not a fixed state but a process of change and harmony in which the present and the future are brought into balance to meet human needs. (The imprecision of the term "sustainable development" is both an asset and a limitation. Terms such as money, love, quality and integrity are similarly difficult to define. Nevertheless, their practical value in establishing general direction and as a basis for consensus are well accepted.) Further information can be found in the special issue of Scientific American, September 1989, entitled "Managing Planet Earth," and in "Our Common Future," a 1987 report of the World Commission on Environment and Development, Oxford University Press.

Mr. WHITTEN. Thank you, Mr. Chairman. I appreciate this opportunity, and may I say for the record I don't believe any group in the history of this country has done a better job than this subcommittee. I have served on this subcommittee for years and am a member now. Tom Bevill and all the members have put first things first, and that is our country.

STATE OF THE NATION

I will take my time, if I may, Mr. Chairman, to discuss the current situation as I see it, because tomorrow, as required by law, we will have an overview hearing of the whole budget with the Secretary of the Treasury, the President's chief economic advisor, and the Budget Director.

Let me start off by saying what a fine job the Corps of Engineers, and you folks have spent your lives at it, and you Mr. Secretary, who has spent hard years working at it, have done. I am proud of all we have accomplished. The country's real wealth is material. Money is just paper, promises to pay. We have let our financial situation get in such bad shape, and I'm not trying to fix responsibility, that it is imperative that we do take care of our country on which all the rest is based. I am glad to leave it in your hands.

All things considered, I think the President has made a reasonable budget request. However, if we look at the overall picture, we have ended up with a $3 trillion debt. $3 trillion is more than any nation ever owed in history. The only way you can pay for it is to produce more than you use and export more than you import. We are violating that right and left.

Mr. Secretary, in your testimony you talked about mitigation on the Tennessee-Tombigbee Waterway. I am all for it. That was a part of the judgment of the court. I think it is high time we talked about the environment. In another subcommittee, I heard people from New York, Chicago and other big cities talk about environmental problems. What are you going to do with the garbage? You can look at the dying forests that we have and shortages of water. How are you going to get drinking water out of salt water?

And the water table is dropping all over the country. We have to go full speed ahead to solve these problems. In this connection, I think we are being short-sighted in cutting back on all the programs that have been good. We better make arrangements to use what we have.

FY 1983 JOBS BILL

Under President Reagan in 1983, when we had a recession, President Reagan requested, and only we in the Congress took him at his word, that we create a jobs bill. Now, when you look and see all these folks coming back from the military, when you read in the papers from any section of the United States that people are being laid off, it is bound to dawn on you that we are facing a real emergency where we are going to need to go to work to see that folks have productive jobs, which is different from service jobs.

At that time, Speaker O'Neill looked around several places trying to find someone to handle a jobs bill at the request of Mr. Reagan. It ended up with me, and I stayed here through the Easter

recess, and here is what I did: I took all the requests made by all the subcommittees for development, to produce things that were needed, and listed all of them. We were not able to provide all the money. But we passed a jobs bill and that jobs bill money was spent all over this country helping local communities. The money was spent well and favorably to improve the areas. It worked. Mr. Reagan is really proud of it. I think that whatever you may say about these committees, we better start to work now seeing how we can put people to work.

NEED TO INCREASE PRODUCTION

May I say again, we must do something about the environment. We must do something about the water supply. You might mention the wetlands issue, which is a minor thing in many ways, but a big thing in others. I think we should protect the wetlands. But we should be sure that they are wetlands, because—and I don't farm—agriculture has been our biggest dollar in world trade.

I think we are going to have to use the farm land for production, so let's be sure that what we call wetlands really are wetlands. That is all I say. I belong to Ducks Unlimited. I don't run it, but I agree with them.

I mention all this as an illustration. Years ago, Mr. Henry Fowler was here at a time when we were trying to increase production capacity to meet an all-out war with Russia. He said, "Jamie, you know, if I were running Russia, I would declare five years of peace, and it would ruin us. Just think if all these men were coming home from the service without a job, the contractors closed down shop, and they didn't have work. It would wreck the country."

We have more cars, more clothes, more everything than any other country. I thought, surely it can't take preparation of war to have prosperity. I decided it was the extra effort. If we made the extra effort in building dams where they are needed, doing things for a better life, we would end up a richer country. In preparation for war, you consume your resources and spend money. If we used that same effort, we would come out a richer country and a better country.

NEED TO REDUCE NATIONAL DEBT

I think we are faced with that today. A $3 trillion debt. I repeat again, $3 trillion. You can't reduce it unless you export more than you import. I think we are facing that.

I want to say again, I am proud of this subcommittee, proud to be a member of it, a long-time member. Mr. Bevill has done a good job, as has everyone on this committee. We agree with every objective, but we need to have productive jobs for active productivity. We need to produce, and the problem we have today you will never handle unless we speed up production. You just can't save enough on the grocery bill to deal with the debt we already owe.

There are two or three other things. We always measure things against GNP. Do you know that all the waste you have increases the GNP? It does. But it is a pleasure, again, to be on this subcommittee. I am proud of the work you do. I think we will live with

what we have. It is the best we can do under all the circumstances, and we can count on you and this subcommittee.

Sooner or later, we will have to go to work and realize that we live in a competitive world and we can't give away everything we have and let other folks have our domestic markets and we can't give up the world market.

The reason I spell this out, is that I have been trying to prepare myself for tomorrow when we have the overview hearing and again, I take a back seat to General Hatch. I didn't understand his illustration about stars but it sounded similar to the budget we got this year.

I told the Budget Director that by cutting from seven books down to one he just made it seven times harder to find anything.

Mr. BEVILL. Thank you, Chairman Whitten.

Mr. Whitten is not a farmer, but he did not point out that he is also known as the real, since he is the author of the Agriculture Department's appropriations bill, Secretary of Agriculture of the country.

Mr. WHITTEN. That is correct but I am not going to claim that the last 10 years.

Mr. BEVILL. Thank you.

COMPLIMENTS TO MRS. SMITH

The Chair will recognize Mrs. Smith. And, Mr. Secretary, you mentioned how much we are going to miss her and some of us here are still trying to talk her out of it. She is such an asset to this committee. She does a great job for the country. We still have hope.

The Chair recognizes Mrs. Smith.

Mrs. SMITH. Thank you, Mr. Chairman, Mr. Whitten, and all the members of the committee. I appreciate that. I am going to miss all of you very much. Indeed, I am.

Welcome, Mr. Secretary and General Hatch. Congratulations, General Kelly. And, Mr. Doyle and Mr. Cluff it is good to have you again.

LODGEPOLE CREEK AND DEADWOOD DRAW, SIDNEY, NE

Let me say, first, how much I appreciate your letter of January 25th in which you approved the flood control program out in the Lodgepole Deadwood area. We have been waiting 15 years for that flood control project. I am aware that I scolded you in a letter last fall and I want to say how much I appreciate your great response, and that Colonel Witherspoon came out to visit that project. He came to my office and told me about it. The folks out there are just delighted.

MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM

Now, next, I would like to ask if you would comment a little bit more about the drought. I know that the Corps makes assumptions about drought conditions in the Missouri River Basin. I am aware that you couldn't read all of your statement, but it says that for three successive years those reservoirs on the main stem of the Missouri have been lower than they ever have been since the pro-

gram was started in 1967. You said it would take six years of normal runoff before the levels would be back to normal. I wonder if you could comment more about that problem in the Platte River Basin. My Congressional district is the second-most agricultural district in the nation. Eighty percent of our row crops are irrigated. We have a number of agricultural leaders from my district here this morning, listening to this, and all of us are very concerned.

What is the Corps' assumption about what the conditions will be during the coming year? Particularly, what is the worst-case scenario in case we don't get rain?

Mr. PAGE. Yes, ma'am, as you are well aware, that situation is constantly on our mind. Just yesterday General Kelly was briefed on that situation. We are looking at snow pack and projections of future rainfall. You are quite correct that we did figure that the reservoirs would take approximately six years of normal runoff to recover from that drought.

We have visited the various areas. There have been a number of measures taken to extend ramps in areas of recreation. Your concern is more with irrigation than that.

UPDATE OF MASTER WATER CONTROL MANUAL

The Corps has initiated a restudy for the entire area. I will have the Corps address, more specifically, what we are looking for and when that study will be completed. As of yesterday, the Corps is talking about some adjustment to the navigation period. It is also finding a little more favorable flow than we have had before, or that we calculated.

Maybe General Kelly would like to add to this.

General HATCH. I will start.

Mrs. Smith, as you know, for the last three years Missouri Basin has continued to be basically in a drought condition and, because of that drought and increasing public concerns, we have initiated a complete review and update of our current operation plan for the Missouri Basin and reservoirs. We expect the plan to be completed during calendar year 1991. Interests throughout the basin are very concerned with that plan. There is adequate public involvement and, hopefully, we will make some adjustments, primarily in accordance with current economic needs. That plan dates back to the mid 1970s, I believe, and needs to be updated.

We hesitate to try to be a weatherman, but we do have normal snow pack in the upper basin now and, with normal rain, we hope that next year will be better than last year. I would rather not venture beyond that.

We hope that we will get normal rains this spring and we will be better off than last year.

Pat, anything to add?

General KELLY. No, sir.

Mrs. SMITH. I appreciate the thoughtful comments and I appreciate your concern.

STREAM BANK EROSION

Now, to the issue of stream bank erosion. I brought over with me this morning the results of our $50 million research study of

stream bank erosion that was finished back in 1981. I think we all hoped then that Congress would go ahead and authorize some work on stream bank erosion, and we did. The authorization is in place under PL 99-662.

I understand we have 7 million miles of streams, that over 500,000 of these are heavily eroded; and 125,000 miles are extremely eroded.

In my district we have a big problem. I put forth a real effort to get planning and technical assistance funding for a demonstration program on the Platte River, under Section 55. Colonel Witherspoon visited the project yesterday. But, I wonder why you give stream bank erosion low priority when I think we should have a solid program directed at doing something about it and finding out better what to do.

General HATCH. If I may, Mrs. Smith, let me first address the Platte River situation. In November of 1989, we forwarded a report to the Congress which concurred in the recommendations of our district engineer to request release of plans and specifications money. We essentially will complete our plans and specifications for that potential work this next August, 1990. But we have no plans to proceed beyond the plans and specifications. It is a question of affordability.

We would estimate easily billions and billions of dollars would be required to correct legitimate stream bank erosion concerns from many, many parts of the country.

For that reason—the question of affordability facing the Congress and the American people—which the Chairman was addressing the administration has elected not to give a high enough priority to stream bank erosion, generically, to warrant requesting funds for this effort.

Mrs. SMITH. Well, of course, that is a judgment call and we are not thinking of asking for money to correct every stream bank, but I am hoping that we can go ahead with some demonstration programs to help people understand better how they can protect themselves.

PROJECT DEAUTHORIZATION

On another question somewhat related, in your letter to me, Mr. Secretary, of October 12, you advised of the five-year deadline for obligations to prevent deauthorization in Section 1001 of the Water Resources Development Act of 1986. I am particularly concerned about the Missouri River mitigation program in which you are recommending $429,000 for planning this year. Does providing that money mean that the project will not be deauthorized automatically next November?

Mr. PAGE. To the best of my knowledge, and I am an engineer, not a lawyer, yes. I feel that timely obligation of those funds will automatically prevent deauthorization of the project.

Mrs. SMITH. I am aware that that law is not written perfectly clearly and is subject to interpretation. Have you gotten an agreement from OMB on your assessment?

Mr. PAGE. I would say that they agree with our assessment.

Mrs. SMITH. Have they agreed by letter?

Mr. PAGE. Not by letter.

Mrs. SMITH. Not by letter. But you are telling this subcommittee that OMB has agreed?

Mr. PAGE. They have agreed in this one case.

Mrs. SMITH. I see. That does not mean that in other cases where there has been nothing but planning money, that they would agree, for instance, on the Platte Valley River bank stabilization project?

Mr. PAGE. Not necessarily.

Mrs. SMITH. Unless there was some more money obligated within the five-year period for planning.

I think that concludes my questions, but I have some more that I would like to submit for the record, Mr. Chairman.

[The information follows:]

DROUGHT IMPACTS ON CORPS WATER PROJECTS

Mrs. SMITH. Please provide a discussion of the drought conditions in the nation, with particular focus on the Missouri River Division, the Midwest and West. What does the Army Corps of Engineers assume to be the worst case, in light of present conditions, and what are assumed consequences of those worst-case assumptions?

General HATCH. Drought continues to affect Corps of Engineers water projects in some areas of the nation. Symptoms of drought at these projects are low reservoir storage volumes and low river levels, which, in turn, cause negative impacts on all the purposes for which the projects were authorized. A short assessment of the most significantly affected areas follows.

MISSOURI RIVER BASIN. After three successive drought years, the six main stem Missouri River reservoirs, which comprise the Corps largest single water storage system, are at their lowest volume since the system was first filled in 1967. Lower releases have impacted hydropower generation, navigation depths and navigation season lengths, water supplies for municipalities and power plants, and river-based recreation, while the lower lake levels have affected lake-based recreation and some municipal and agricultural water supplies.

Thus far in 1990 drought continues in the plains portion of the Missouri River basin; virtually no snow cover exists to feed the lower basin tributaries this spring. However, conditions are better in the mountainous upper basin where the snowpack is very close to normal in the drainage area above Garrison Dam. Storage in the reservoir system is now 43.1 million acre-feet (MAF) and the forecast for calendar year 1990 runoff at Sioux City is about 22 MAF, which is 3 MAF less than normal. The forecast is based on water now on the ground and assumes normal precipitation for the remainder of the year.

MRD's recently announced water control plan for this year calls for making releases to meet only minimum navigation target flows along the Missouri River and for a navigation support season that is 5 weeks shorter than normal. Assuming continued low runoff from lower basin tributaries this summer and fall, this plan would result in only 14.9 MAF of water being released from Gavins Point Dam this year. This amount would be between 1.5 and 2.0 MAF less than was released in 1989. Though the current volume of stored water is sufficient to meet, albeit in limited fashion, project purposes if the drought were to continue for several more years, it still will take six successive years of normal runoff to refill the reservoirs to their ususal operating levels.

MIDDLE MISSISSIPPI RIVER. Below normal runoff from the upper Mississippi River and the Missouri River basins has caused the flow rates and stages of the Mississippi River between St. Louis, Mo. and Cairo, Ill. to be well below normal throughout 1989 and now into 1990. At times these conditions have required a reduction in the size and draft of the commercial tows navigating this reach of the Mississippi River and during the ice-impacted period in December caused the closure of navigation for several days. A recurrence of conditions such as those which were experienced during the fall of 1989 would again create limitations on commercial navigation. Improvement in this situation is dependent upon the future occurrence of snowmelt and rainfall runoff.

CALIFORNIA CENTRAL VALLEY. The third successive year of drought caused low storage levels at Corps of Engineers reservoirs in the southern portions of the Central Valley during 1989. Storage volumes are now as low as 15% of historical average amounts at some projects. The water shortage has principally impacted the irrigation districts who bought storage space and own the rights to the waters stored therein. Present (1 Feb. 90) forecasts for the snowmelt runoff season, which starts in April and ends in July, call for only 60% of normal runoff volume for the Sacramento River basin and 55% of normal for the San Joaquin River basin.

CENTRAL AND SOUTHERN FLORIDA. Lake Okeechobee, the principal source of water for this region, has dropped in volume for the second consecutive year and is now more than 2 feet below normal. Also, the water conservation areas are at their lowest levels ever. As part of the plan to reproduce natural hydrologic variations in the Everglades National Park, water deliveries from the Corps Central and Southern Florida Project through Shark Slough have been stopped and only minimum deliveries are being made to the Park through Taylor Slough. Water restrictions have been imposed on residential and commercial users within the South Florida Water Management District, local sponsor of the C&SF Project.

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Mrs. SMITH. What additional capability would be needed by the Army Corps of Engineers to carry out its mission in this worst-case scenario?

General HATCH. Under the current and forecast situation there are no additional capabilities needed by the Corps of Engineers relative to drought impacts on Corps projects and missions. However, if flowrates in either the Missouri or the Mississippi rivers reduce to levels lower than expected, more dredging may be necessary than has been anticipated. Also, the ongoing study to review and update the Master Water Control Manual for the main stem Missouri River reservoir system includes as an objective the identification of any desirable improvements to the operating plan that may be constrained by existing authorities or limited by resources. If any such needs are identified during the conduct of the study, which is expected to be finished in autumn of 1991, they will be made known to Congress.

PLANNING ASSISTANCE TO STATES PROGRAM

Mrs. SMITH. Please provide a table showing state-by-state breakdown of allocations of Section 22 coordinated studies appropriations for FY1990 and the previous 10 fiscal years.

General HATCH. A table showing allotments of Planning Assistance to States funds by state since 1980 is provided for the record:

(The information follows:)

PLANNING ASSISTANCE TO STATES PROGRAM ALLOTMENT HISTORY

PLANNING ASSISTANCE TO STATES PROGRAM ALLOTMENT HISTORY ($000)

STATE	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90***
ALABAMA	35	20	25	0	0	0	19	33	20	67	118
ALASKA	70	40	50	40	14	10	18	20	35	95	52
ARIZONA	150	60	50	6	10	30	65	43	50	52	47
ARKANSAS	0	0	50	35	95	50	192	98	113	72	66
CALIFORNIA	94	42	98	78	85	45	39	60	75	50	62
COLORADO	30	15	37	15	20	26	18	20	40	190	118
CONNECTICUT	20	10	20	10	0	20	36	48	48	66	33
DELAWARE	75	78	60	3	5	10	12	10	28	91	62
DIST. OF COL.	15	5	10	7	0	0	4	15	25	12	9
FLORIDA	125	60	100	25	10	50	74	48	70	57	19
GEORGIA	74	50	78	30	50	60	54	68	60	82	38
HAWAII	160	140	200	110	140	45	28	28	85	74	62
IDAHO	100	95	70	55	22	15	17	20	20	16	38
ILLINOIS	170	98	127	101	67	71	63	78	93	119	81
INDIANA	25	25	50	100	100	100	119	96	110	91	118
IOWA	100	72	95	66	60	57	52	55	53	76	48
KANSAS	2	0	50	200	28	105	116	105	100	107	43
KENTUCKY	140	75	190	45	100	100	115	96	110	91	118
LOUISIANA	40	27	0	20	30	30	35	40	40	100	118
MAINE	20	20	15	10	0	20	18	40	10	21	19
MARYLAND	45	45	70	40	40	50	31	41	53	62	52
MASSACHUSETTS	20	10	20	10	70	30	18	10	60	71	38
MICHIGAN	120	70	100	64	69	62	54	41	69	57	40
MINNESOTA	170	105	154	97	67	98	43	57	291	267	118
MISSISSIPPI	35	15	25	0	0	0	0	0	40	40	66
MISSOURI	35	30	24	20	10	10	10	10	10	25	28
MONTANA	0	0	35	20	5	5	6	20	20	21	28
NEBRASKA	50	45	60	35	10	13	10	30	20	300	118
NEVADA	11	5	6	4	5	15	0	0	10	21	28
NEW HAMPSHIRE	20	10	15	10	45	20	27	20	40	40	19
NEW JERSEY	25	14	50	80	30	75	133	200	63	248	118
NEW MEXICO	10	6	11	10	5	5	4	12	77	67	43
NEW YORK	*	*	220	145	80	200	156	198	175	215	85
NORTH CAROLINA	93	55	78	50	45	45	26	25	60	16	34
NORTH DAKOTA	20	128	105	60	20	45	180	175	281	280	118
OHIO	100	90	200	80	95	90	84	94	100	91	66
OKLAHOMA	100	64	35	200	100	100	177	184	155	181	104
OREGON	20	27	30	23	12	23	21	50	70	107	43
PENNSYLVANIA	85	90	110	75	55	55	192	50	103	64	47
RHODE ISLAND	20	10	15	10	0	20	19	20	20	56	28
SOUTH CAROLINA	28	25	24	30	55	30	77	108	65	32	28
SOUTH DAKOTA	60	28	54	30	10	10	9	10	10	161	28
TENNESSEE	35	35	50	40	50	50	46	49	55	46	43
TEXAS	108	62	104	70	90	200	168	139	170	169	85
UTAH	10	5	6	2	5	15	2	40	65	66	19
VERMONT	60	10	15	10	0	20	19	10	22	21	19

PLANNING ASSISTANCE TO STATES PROGRAM ALLOTMENT HISTORY ($000) - (Cont')

STATE	FY80	FY81	FY82	FY83	FY84	FY85	FY86	FY87	FY88	FY89	FY90***
VIRGINIA	30	26	30	20	60	50	34	40	53	198	118
WASHINGTON	50	43	40	42	17	15	18	30	35	37	43
WEST VIRGINIA	45	50	200	75	125	80	81	100	100	82	52
WISCONSIN	170	105	154	97	87	72	61	64	98	117	61
WYOMING	0	0	15	10	7	1	0	0	0	4	33
AMERICAN SAMOA				12	**	0	10	30	45	25	19
GUAM				0	**	0	0	0	5	4	19
N. MARIANA ISL				0	**	0	0	0	40	16	19
PUERTO RICO	*	*	530	200	150	150	141	142	120	99	76
TRUST TERRITORIES				43	25	95	120	150	0	0	5
VIRGIN ISLANDS	0	0	25	15	25	25	21	30	10	21	47
TOTAL	3020	2100	3985	2688	2305	2620	3092	3200	3795	4854	3341

* FUNDED UNDER SEPARATE AUTHORITIES
** FUNDS INCLUDED UNDER HAWAII
*** INCLUDES $137 K CURRENTLY UNALLOTTED

PLATTE RIVER STREAMBANK EROSION CONTROL DEMONSTRATION PROJECT

Mrs. SMITH. What is status of the Platte River Streambank Erosion Control Demonstration Project in Lincoln County, Nebraska?

General HATCH. The decision document for the Platte River Streambank Erosion Control Demonstration Project has been completed, and funds have been provided to the Omaha District to prepare plans and specifications. The plans and specifications are scheduled to be completed in August 1990.

Mrs. SMITH. What was recommended in the decision document on this project?

General HATCH. The decision document identified 60 sites that need bank stabilization and recommended preparation of plans and specifications on all 60 sites

Mrs. SMITH. What is the estimated construction cost of this project?

General HATCH. Construction of these 60 sites would cost about $4 million.

Mrs. SMITH. What is the Army Corps' estimated capability for project construction in FY 1991 and subsequent years to completion? Please provide a proposed funding and construction schedule for this project.

General HATCH. Since bank stabilization work is not in accord with current Administration priorities, we have no capability for project construction in FY 1991. Accordingly, we have not established proposed funding or a construction schedule.

Mrs. SMITH. Do Section 55 planning and technical assistance funds already appropriated and utilized for the Lincoln County Streambank Stabilization Demonstration Project protect it against automatic deauthorization under terms of the Water Resources Act of 1986, particularly with respect to Section 1001(a)?

General HATCH. Obligation of preconstruction engineering and design funds in FY 1990 prevents the project from being deauthorized under the provisions of Section 1001(a) of the Water Resources Development Act of 1986.

MISSOURI RIVER FISH AND WILDLIFE MITIGATION

Mrs. SMITH. In regard to the Missouri River Fish and Wildlife Mitigation Program, Iowa, Nebraska, Kansas, and Missouri, please provide an proposed construction and funding schedule for FY 1991 and subsequent years to completion.

General HATCH. The funds requested for FY 1991 will be used to complete preconstruction engineering and design. A part of that activity is the preparation of outyear schedules for construction. We currently anticipate that construction of the project will take about 10 years.

Ms. SMITH. Army Corps of Engineers policies and practices in controlling reservoir water levels at certain hydroelectric power facilities in the Southeastern Power Administration and in the Western Area Power Administration are being questioned by some power customers, including several rural electric cooperatives. Please provide a discussion of current Corps procedures for developing and changing water control plans in these areas. Are views of affected federal, state and local government agencies and project beneficiaries formally solicited, considered and reflected in Corps water control decisions? Does the Corps carefully follow authorizing laws in making decisions regarding these plans? Should present laws be changed to more adequately address water control problems?

GENERAL HATCH. Corps of Engineers water control management procedures and responsibilities are set forth in 33 CFR Part 222, Sec 222.7 and in 33 CFR Part 208, Sec 208.11. Specifically, these regulations prescribe requirements for the preparation and modification of water control plans. The operation of multiple purpose reservoir projects involves careful, up-to-the-minute evaluations of hydrologic conditions (pool elevations, inflow rates, downstream river stages, forecast and observed rainfall, etc.) in the watersheds, reservoirs and rivers and application of the approved water control plans to assure best use of the available water resource.

At times, needs arise to modify water control plans in response to changing situations. The modifications range from those that are necessary to respond to emergencies during flood control operations to longer term modifications such as are necessary to respond to extended periods of drought. When developing a new or modified water control plan the Corps must consider all specifically authorized purposes of the project together with other Congressonally mandated purposes, such as water quality control, fish and wildlife, endangered species, etc. Water control management of multiple purpose reservoirs during droughts involves the development of water control plan modifications to apportion the water shortage amongst the several, and often competing, project purposes. It is during such times, when the Corps, the public and the affected parties must redetermine and adjust the priority of project purposes to best use the available resource, that water control management becomes most difficult. In addition to the stated authorities for operational changes, the Water Supply Act of 1958 granted discretionary authority to the Chief of Engineers to add water supply to completed projects when it will have no significant effect on other authorized puposes and will involve no major structural or operational change.

Modification of a project water control plan may be made by a Corps District office after review and approval by the Division Engineer. Such modificatons may result from changed requirements in the project area and/or downstream, improvements in technology used for weather forecasting and hydrologic data acquisition, new Congressional legislation (e.g., Clean Water Act amendments), hydrologic perturbations such as droughts, and other related factors. Additional authority is not requested from Congress unless the desired change involves a purpose that is not included within the specific project authorization or general legislation given to the Secretary of the Army.

Corps policy set forth in 33 CFR Part 222, Sec 222.7 requires that public information and public involvement activities be conducted in conjunction with the development or modification of water control plans. The views of all interested and affected parties are solicited through these processes. The open public meeting and the entertainment of written comment from any individual or group are the most fair and effective means by which the Corps can assure the widest possible representation of interests.

CORPS OF ENGINEERS RECREATION STUDY

Mrs. SMITH. Please provide a discussion of Army Corps efforts to shift recreation areas to nonfederal control.

General HATCH. A task force was established within the Corps to develop a plan to maintain and enhance the public recreational opportunities at Corps water resource projects while reducing Federal expenditures for recreation. This effort is being conducted under the authority and with funds provided for the Corps of Engineers to operate and maintain water resource projects. The study will identify a series of management programs and strategies; their advantages, disadvantages, and potential applications; their probable impacts on recreation services and the Federal burden; and a recommended plan of implementation. Essentially, the plan will focus on development, enhancement and operation of recreational facilities at Corps projects by non-Federal public agencies and the private sector to the maximum extent practicable. In keeping with the objective above, the Assistant Secretary of the Army for Civil Works directed that the closure of existing facilities or deferral of maintenance as a means of reducing Federal expenditures are not to be considered as part of this effort. Existing restraints in law, regulation, or policy will be identified, but not allowed to limit proposals evaluated in developing a plan.

Mrs. SMITH. Is the study underway?

General HATCH. Yes, the Corps recreation study is underway. We initiated that effort in September 1989.

Mrs. SMITH. When will it be completed?

General HATCH. The Corps recreation study is scheduled for completion by September 1, 1990.

Mrs. SMITH. How much will the study cost?

General HATCH. The Corps recreation study will cost an estimated $500,000.

Mrs. SMITH. How much money could be saved by involving nonfederal sponsors?

General HATCH. It is too early in the study for me to be able to provide you with a definitive projected savings.

Mr. BEVILL. Mrs. Boggs?

Mrs. BOGGS. Thank you so much, Mr. Chairman.

Mr. Secretary, Generals Hatch and Kelly, and Mr. Cluff and Mr. Doyle, it is always a pleasure to see you and thank you for being here today.

DOD CIVILIAN HIRING FREEZE

The Secretary of Defense has imposed an civilian hiring freeze on all defense agencies until next fall. What effect will this freeze have on your programs?

Mr. PAGE. In the case of, let us say, seasonal employees, the freeze would have a great deal of impact. As for the stabilization of a permanent force, we are looking at that now, but we do not see the impact as severe. We are going to the Secretary of Defense, through the Secretary of the Army, to seek clarification on whether the freeze applies to these seasonal workers.

Mrs. BOGGS. I was particularly concerned because your Lower Mississippi Valley Division performs work laying concrete mattresses on the mainstream of the Mississippi using temporary help. Will there be some sort of a waiver for hiring this type of worker?

Mr. PAGE. We are aware of this case, I can't specifically say exactly how we will approach it. I don't know. But I would say that we should request a waiver for hiring these workers. We will ask for one.

Mrs. BOGGS. Thank you.

WETLANDS

I certainly commend the Corps for the new undertakings in the protection of our wetlands.

Would you please summarize your wetlands funding request and provide a detailed breakout, for the record, showing how much of this is for continuation of ongoing programs and how much of it is for new initiatives?

Mr. PAGE. Yes, ma'am, I would like to do that, but the gentleman to my right has been very instrumental in putting this program together, and is quite proud of it, so I will let him answer that.

WETLANDS STUDIES

General HATCH. We have been working on this issue rather intently over the past few years. We are very concerned with the approximate loss of some 35 square miles of our marshes, annually, and with your assistance and guidance, have engaged in a number of efforts. I will just mention some of them briefly, and will provide a more detailed response for the record, if you wish.

They include the Louisiana Coastal Area Land Loss and Marsh Creation study, a study of similar concerns in the Atchafalaya Basin, and the all-encompassing Louisiana Comprehensive Coastal Wetlands study, as well as the Mississippi and Louisiana Estuarine Areas design effort, and construction of the Mississippi Delta Region project.

We began the comprehensive wetlands study in February of 1988 with an estimated Federal cost of $1.5 million. We included $563

thousand for the study in the 1991 budget and hope to complete that in February of 1993. An interesting aspect of the study is that Federal, State and local agencies have formed some unprecedented partnerships in addressing that dramatic problem.

We will provide more detailed descriptions of these efforts and their current projected completion dates for the record. We will also provide a summary of our activities nationwide for committee files.

[The information follows:]

Mrs. BOGGS. Thank you very much.

COST SHARING FOR BONNET CARRE DIVERSION

Also, Mr. Secretary, I am happy to hear that you proposed to initiate the construction of the Davis Pond fresh water diversion structure in Louisiana as part of the Mississippi River Delta Region project. The Corps has demonstrated its willingness to work with the State of Louisiana in the construction of several freshwater diversion projects aimed at protecting coastal wetlands. The State of Louisiana is enthusiastic about these projects but is faced with its own budgetary constraints.

Would the Corps support efforts to reduce or eliminate the non-Federal contribution to the Bonnet Carre' project given the national interest represented by the wetlands preservation elements of this project or the contributions of the project to mitigating the expected adverse impacts on wetands from other proposed projects, such as the deepening of the Mississippi River channel or the widening of the Gulf Intracoastal waterway?

General HATCH. The Water Resources Development Act of 1986, Public Law 99-662, did not address cost sharing for commercial fishing, which is a non-traditional project purpose. Because the outputs of the Bonnet Carre' project have a clearly identifiable commercial value, the Administration initially sought cost sharing at 50 percent Federal, 50 percent non-Federal. During the summer of 1989, however, we reexamined the appropriate cost sharing requirements for this project and concluded that, although the commercial benefits associated with this environmental enhancement were quantified, the project could be treated at the kind of fish and wildlife enhancement project for which 25 percent non-Federal construction and operation and maintenance cost shares would be appropriate. The State of Mississippi has already agreed to provide 20 percent of the required 25 percent non-Federal share of the project costs, based on the share of project benefits that will accrue to the Mississippi oyster beds. We believe that to further reduce the share of the project to be borne by the State of Louisiana would be inappropriate.

PROJECT MODIFICATIONS FOR IMPROVEMENT OF THE ENVIRONMENT

Mrs. BOGGS. I am also pleased to see the Corps has decided to request funding under Section 1135 of the 1986 Water Resources Development Act. How do you plan to use these funds? Of course, I am particularly interested in the projects in the Lower Mississippi Valley region.

Mr. PAGE. General Hatch has the list.

General HATCH. The one project we are focusing on now is on the Kissimmee River in Florida. Basically, the work will be for restoration, with a focus on environmental values. This represents a change in direction from the previous primary concern for flood protection in that area.

Mrs. BOGGS. I notice, Mr. Secretary, in your testimony that you are going to ask for extension of authority of Section 1135 of the Act of 1986?

Mr. PAGE. Yes, ma'am, for an additional five years.

PROJECTS/STUDIES ADDRESSING LAND LOSS

26 Jan 90

PROJECT/STUDY NAME	DESCRIPTION	FEDERAL COST $(000)	BUDGET FY 91 $(000)	START DATE	COMPL DATE
(GENERAL APPROPRIATIONS)					
Louisiana Coastal Area -- Land Loss & Marsh Creation Study	To determine the advisability of improvements, or modification of existing improvements, in the coastal area of Louisiana in the interest of creating marsh and preventing further wetland loss.	1,696	171	FY 84	JUL 92
Louisiana Coastal Area -- Comprehensive Coastal Wetlands Study	To develop a comprehensive plan for dealing with Louisiana's coastal wetlands loss problem by bringing the numerous Federal, State, and local agencies, and their many studies and proposed solutions, under one coordinated umbrella study, with the Corps of Engineers as the lead agency.	1,452	563	FEB 88	FEB 93
(MR&T APPROPRIATIONS)					
Atchafalaya Basin (Water & Land Resources) Study	To optimize delta growth while maintaining the safe passage of flood flows and navigation through the delta portion of the Atchafalaya Basin.	6,570	0	FY 69 (Delta Mgt Sep 82)	APR 92
Mississippi & Louisiana Estuarine Areas (PED)	To improve wildlife and fisheries resources in the Lake Pontchartrain Basin and the western Mississippi Sound via freshwater diversion.	57,000	0	FY 85	Indef.[1]
Mississippi Delta Region	To reduce saltwater intrusion and improve fish and wildlife habitat and productivity in the coastal marshes.	61,500	4,260	FY 87	APR 95

[1]Pending receipt of Local Assurances.

MEMORANDUM OF AGREEMENT BETWEEN THE CORPS AND EPA ON WETLANDS

Mrs. BOGGS. Okay. Some concerns have been raised that the definition of no net loss contained in the MOA you signed with EPA and the manner in which the MOA addresses sequencing, constitute extreme barriers to development in coastal areas such as Louisiana, and will result, in effect, in unconstitutional takings of privately owned property. How do you respond to that?

Mr. PAGE. Mrs. Boggs, from the time we initiated the MOA about five years ago, until we signed it a little over a month ago, we looked upon the MOA merely as a definition of how we will execute the wetlands program. And we still do.

The EPA, Corps and other agencies involved in mitigation determinations for wetlands, were all going in different directions. In fact, in your area, the EPA and Corps were doing just that. There seemed to be no consistency.

The net result was that we were costing the taxpayer money without getting to a sequencing in which we both agreed. This caused us a great deal of concern throughout the country. So, we put the MOA together to establish the sequencing. Later we found out that most states had been following that procedure in any event. Therefore, I feel that it does not change the way we determine mitigation, nor how we are going to proceed with the policy of no net loss of wetlands. Our own attorneys and the Justice Department agree that the MOA merely provides a clear definition of our objective and, therefore, does not require rulemaking.

However, as for anything written, there can be a number of interpretations. I think that is where you are coming from.

As you know, issuance of the MOA has been delayed.

Mrs. BOGGS. Thank you, Mr. Secretary.

General Hatch, did you wish to add?

General HATCH. The MOA entered into by Mr. Reilly and Mr. Page was clearly not a statement of a no-net-loss policy nor was it intended to be so. It was to clarify a number of things we had ongoing, even before that policy was articulated by our President. In fact, it would pull the EPA and the Corps of Engineers more along a common line so there would be less confusion in the field and more coherent application of the Section 404 process across the United States.

Mrs. BOGGS. Thank you very much.

PROPOSED USER FEES

There are several user fees that you referred to, Mr. Secretary. You are proposing to implement higher fees on the processing of Section 404 permits. Could you provide some details on this? Would this recover all costs?

Mr. PAGE. No, ma'am, only the user fees for harbor use would recover all costs.

Mr. DOYLE. The Regulatory Program user fees will not recover all program administration costs, only a portion of them.

Mrs. BOGGS. Do you think the ultimate effect of this new fee structure will be to discourage landowners from requesting 404 permits because of the cost and nuisance of that?

Mr. DOYLE. No, ma'am, the administration does not, and they are certainly not intended to produce that effect. Rather, they are intended to help recover some of the costs associated with administering the programs.

Mrs. BOGGS. What effect will the proposed increase in harbor maintenance fees have on commerce, particularly at those ports with high annual maintenance costs or low value cargos?

General HATCH. I will try that, if I may. We have had informal discussions with the port interests and the initial, very informal reaction, we received is that, in fact, they may be in favor of this plan because it would provide them with, if you will, a fully supported trust fund. They might prefer that they no longer be constrained by the amount of money we are willing to budget, or the subcommittee is capable of proposing, for the maintenance of their harbors. Considering that it will be applied nationwide, it will promote a level-playing field and make that business pay as it goes. I think they generally would welcome it.

Mrs. BOGGS. I am told my time is up. I will ask other questions later.

Thank you very much, Mr. Chairman.

Mr. BEVILL. Thank you.

The Chair recognizes Mr. Pursell.

Mr. PURSELL. Thank you.

John Myers could not be here today. He had a high-priority matter in the family. We as a family, wish him well. We hope that he returns shortly, Mr. Chairman.

CONGRATULATIONS TO GENERAL KELLY

Welcome, Mr. Secretary, and General Kelly. As an old infantry officer, I like to see my colleagues move up in rank, and I wish you well in your military career, General Kelly.

Mr. Secretary, based on your testimony this year we see a dramatic major sensitivity to the environment, including wetlands. We have had several discussions here, Chairman Whitten included.

NEED FOR LEGISLATION TO PROMOTE CORPS-EPA PARTNERSHIP

With the new bill to elevate the Administrator of the EPA to cabinet rank that may move through Congress rather swiftly, since, I think, there is generally major bipartisan agreement, should we include appropriate language to tighten up, improve, and strengthen the coordination between the Corps of Engineers and the EPA? I think the major agency that you are working with effectively, or sometimes not effectively, in jurisdictional aspects is EPA, although you also work with the space administration and other agencies. Could we develop appropriate legislation that would help build a partnership there?

I see every project, every water project, addressing environmental impacts and the like. I think the partnership should be at the highest level to preclude the traditional brick and mortar, if you will, jurisdictional battles.

Would you care to comment?

Mr. PAGE. Yes, sir. First off, anything like that would help. We take very seriously what you have said. We also recognize that, for

the benefit of the taxpayer and the user, these agencies must agree upon procedures for the laborious process of permitting these projects.

We have worked hard with EPA. I believe that The New York Times and Washington Post said that the coming together of these two agencies on this memorandum of agreement, that Mrs. Boggs just mentioned, was unprecedented. We both are working closely together, and closer at the top than the agencies have ever done before.

Mr. PURSELL. You see some major improvement there?

Mr. PAGE. Yes, it is beginning to permeate down through the regions. In fact, there is not a week that I don't speak with Bill Reilly. I spoke with him this morning. We are in constant contact. Now, you are dealing with personalities.

Whatever we can do to bring the agencies together, including the Fish and Wildlife Service, NOAA, and others, must be done. We are now setting in motion meetings with each one of these agencies at the Secretary level to see how we can at least start a project and determine at the front what the problems are, rather than get 14 years into it and have it turned around.

Mr. PURSELL. Colonel John Glass is an outstanding commander and one of the best I have worked with over the years. They have a particular interest in becoming "more greener", whatever that means. So, they are looking at legislative changes, too, I believe, certain legislation that some of us are looking at. But, I think the EPA bill for cabinet level status provides a good opportunity for your legislative staff to generate some provisions that would help build that partnership and bring us into the 21st century, in the interest of the taxpayer and the country at large. I appreciate your thoughts on that.

INFRASTRUCTURE

One of the questions I had last year, and again this year, is on the aging of our infrastructure. You are going to move ahead, I guess, Mr. Secretary, to form an advisory board with the $350,000 requested? Would that be an inside or outside board, and how would the appropriation be used to help deal with what all of us on the subcommittee are looking at, the aging system? How do we prioritize that and balance it off with Gramm-Rudman-Hollings and fiscal constraints?

Mr. PAGE. As you were speaking, I could hear the answer.

General HATCH. This first year we will devote efforts to forming partnerships and breaking down institutional barriers, beginning in the Executive Branch of the government. Infrastructure is a multi-agency issue. It touches Federal, state, and local governments. We will establish partnerships with the Department of Transportation, for example, and others that have a vital role to play in infrastructure, and will set about development of a plan in coordination with them to do something about it, not just continue to study it. We have found infrastructure problems, and we just kind of keep doing that over and over again.

Mr. PURSELL. Why do you need new money for that?

General HATCH. There has been no effort to pull together in deciding what to do about the problem, what might the roles of the various agencies be, and what might the appropriate roles of the government be. We are not necessarily kicking off any great, big, new Federal program per se, but are trying to develop some coherence in the Federal response to the challenge that has been adequately laid out over the last few years concerning our deteriorating environment.

We will try to determine what action what agency should take, when, and at what level.

Mr. PURSELL. The advisory board, is that internal?

General HATCH. Initially, it will involve over 10 Federal agencies. Under its aegis, we will investigate how to establish partnerships with the State governments, for example, and the private sector that has a vital interest in infrastructure.

Secretary Page has continued to advance the notion that some of the infrastructure work should be funded with private monies. How can that be done? We will begin with the Federal Government and go from there. We will have a modest challenge to establish partnering among the Federal agencies as a first step.

Mr. PURSELL. Provide for the record a summary of your plans for the first year of the infrastructure program.

General HATCH. Yes, sir.

[The information follows:]

The budget request for the first year of effort is $350,000. It would be used to initiate coordination among the Federal study participants and to set up the infrastructure advisory board. The infrastructure board would spend the first year identifying critical issues, laying out a specific course of action required to develop the Federal infrastructure strategy, and opening dialogue with states and interested public and private entities.

Mr. PURSELL. Policywise, I think you are on track. I think the subcommittee would be well served and the country as well.

GREAT LAKES

You are involved with the EPA on the Great Lakes project. That is a big issue. The Great Lakes contain one fifth of all the fresh water in the world. It is a great resource. Most of us from the area are concerned about it.

Where are you with the problems that are now part of the Great Lakes scene? I would appreciate current updates. I don't need a response this morning, but if you want to give a quick comment, please do. My time is nearly expired.

I would like that separated out. If we could, I would like to concentrate on that this year to see how we are doing and what processes and setbacks we might be having.

Mr. DOYLE. It is a matter of high priority in Region 5. EPA and the Corps of Engineers are working closely together pursuant to the requirements of the 1987 Water Quality Renewal Act that set up that toxic hot-spot program.

Mr. PURSELL. Is there a possible need for legislation in the 1990 bill here?

Mr. DOYLE. None that we have identified to this point. If we see that, certainly the committee will be notified.

Mr. PURSELL. I am speaking for the Michigan delegation—John Dingell, Mr. Broomfield, and others. We are watching that closely. We want to monitor that as best we can.

General HATCH. We will provide that for the record.

[The information follows:]

STATUS OF GREAT LAKES

The Corps of Engineers, through its mandate to maintain harbors and channels for navigation, has been managing contaminated sediments on the Great Lakes since the 1960's. A brief explanation is provided below.

The Rivers and Harbors Act of 1970, PL 91-611, authorized the Dike Disposal Program on the Great Lakes and the Dredged Material Research Program. Since 1970, 27 confined disposal sites have been constructed under the diked disposal program at a cost of $295 million for confinement of polluted dredged material. Over 50 million cubic yards of polluted dredged material have been confined.

In recent years, a number of efforts have been initiated regarding sediment contamination on the Great Lakes. These include studies conducted for the International Joint Commission (IJC) on in-place pollutans, remedial action plants for the 42 Areas of Concern identified by the IJC, and Superfund investigations. Because of its considerable expertise with the management of contaminated sediments, the Corps of Engineers has provided technical support to State, Federal, and International agencies in many of these studies.

The Corps has worked closely with the U.S. EPA on studies and design of individual confined disposal facilities at Federal navigation projects. In addition, we have participated with the U.S. EPA in a Confined Disposal Facility Work Group as well as an International Joint Commission subcommittee dealing with contaminated sediments. In particular, we are working closely with U.S. EPA on their 5-year study and research program authorized by Section 118 of the 1987 amendments to the Clean Water Act, known as the Assessment and Remediation of Contaminated Sediments Program (ARCS). Under this program, Buffalo, Chicago, and Detroit Districts, as well as the Waterways Experiment Station, are working on studies for EPA, including such items as bioassessment techniques and alternative treatment technologies.

The Corps continues to work on developing plans for dredging and disposal of dredged material at some of the most seriously contaminated harbors on the Great Lakes, including Indiana Harbor, IN, Waukegan Harbor, IL, Ashtabula Harbor, OH, and Sheboygan Harbor, WI.

Mr. BEVILL. Mr. Fazio?

WETLANDS POLICY

Mr. FAZIO. I want to congratulate you, Secretary Page, on the work that you did on wetlands policy. From everything that I have been able to determine, the Corps has done a very fine job of balancing our environmental concerns about preservation of wetlands and development interests.

I am hopeful that your good draft will eventually be able to pass muster with Mr. Sununu and be implemented. It must have been that highway in New Hampshire that hung them up. But hopefully, we will see something in the short run. Isn't that your assumption?

Mr. PAGE. Yes, sir, and I appreciate what you have said. Not too many voices have come out in that regard.

Mr. FAZIO. As Mr. Pursell said, they want to be greener. I think you are doing an increasingly good job of balancing environmental sensitivity with the pressures that the Corps always comes under. This work with EPA is really good work on the inside, and hopefully we will have a chance to see it soon on the outside.

SACRAMENTO FLOOD CONTROL PROJECT

I also want to thank you for staying on target with the Sacramento flood control efforts. This committee has been very supportive of my efforts to make it a priority. I am pleased to see so much effort made at every level, regional and local. It is important to break down some internal opposition we've had over the years.

I think everyone is working to meet our deadlines. I think we are about to get a local consensus this month. We are hopeful that you will be able to help us stay on target this year, so we can get into one of those authorization bills that General Hatch mentioned that is important to the Corps.

PROPOSED USER FEES

I wanted to ask a couple of other questions following up Mrs. Boggs' questions on user fees. Obviously, no new taxes doesn't mean no new fees. We do understand that. If we watch carefully, the lips are saying T, taxes, not F, fees. I think the question we have to try to get a little more information from you about is just what is required to see these fees become law and how valid, therefore, does that make the Corps' budget presented to us?

The 404 permit fee increase you have the authority to make, is that correct?

Mr. PAGE. Yes, sir.

Mr. FAZIO. You don't need legislation for that; but for the recreational user fee, you do.

Mr. PAGE. We need legislation.

Mr. FAZIO. Is it likely that you would get that enacted and implemented before the end of this fiscal year, in realistic terms, judging from past history?

Mr. DOYLE. Congressman, this is not the first proposal that has been made with respect to recreation user fees. Other proposals were not accepted by the Congress. There have been some adjustments made to this one to try to take into consideration some of the problems raised before. We hope that these enhance the chance of its becoming enacted ultimately.

Mr. FAZIO. Well, I hope you are right, John, but I doubt it. It is only $17 million, so that wouldn't throw the budget too far out of balance. The other fee that relates to the harbor maintenance trust fund is a much more significant one, $293 million. Is that what it would amount to?

Mr. PAGE. Yes, sir.

Mr. FAZIO. What do you think the chances are of seeing that enacted in time to help this committee reach a bottom line on our budget?

Mr. PAGE. You started it, John.

Mr. DOYLE. I think the chances are pretty good, Congressman.

Mr. FAZIO. Because of the reasons that General Hatch mentioned earlier?

Mr. DOYLE. Only partly because of them. I think there is an increasing awareness, for some of the reasons that Chairman Whitten mentioned, that we have to address better than we have collectively, the problems of the deficit. We have to come up with better

approaches, and this, I think, is one that has a very reasonable chance to——

Mr. FAZIO. We need revenue.

Mr. PAGE. Among other things, yes, sir.

Mr. FAZIO. How do we go about getting this enacted in time to help us plug the hole in our bill? Is that going to happen? Even if we could get the Ways and Means Committee to approve this in concert with the Public Works Committee, how can we start collecting the fees by the first of October? Does anyone know how to pull that off?

Mr. DOYLE. Both the House and Senate authorizing committees have indicated a desire to follow up on the success of 1988, restoring the biennial authorization process and to move an authorization bill this year. This would be envisioned as part of that effort.

REASONS FOR NOT APPROPRIATING TRUST FUND BALANCES

Mr. FAZIO. What troubles me is the problem that this committee wrestles with annually. We don't get the collections credited to our committee. General Hatch talked about the inclination of these ports to buy this concept to get funds for harbor maintenance, but, in fact, we don't get the benefits of the trust fund. We appropriate the full amount of money, just like in the airport and highway trust funds.

The fact that the money is in the trust fund doesn't mean it gets spent. If we appropriated all of the money in the fund, we would have less to do everything else. We would be increasing the priority of harbor maintenance versus everything else that the Corps does, wouldn't we?

Mr. DOYLE. I don't begin to understand, and I don't know that anyone at this table understands, the details of the allocation rules in the House and Senate. It is my understanding that the House and Senate follow different rules. With respect to our proposal for the ad valorem fees and the fees for the program, it is clearly the intention of the Administration that those fees be used for those activities.

Mr. FAZIO. Completely, fully funded each year? The highway and airport trust funds are the analogies. We don't spend all the money in the trust funds every year, and we don't do it because we would have no money left for the Coast Guard and for the FAA and other programs in the Transportation Department that are not user-fee oriented.

So, what happens is that this committee finds its priorities determined by a trust fund. Its other interests—construction, research and development, and other initiatives the Corps would want to enter into, are all crowded out. I don't deny that we need to do more harbor maintenance dredging, but there is a question here of user fees determining this committee's flexibility. That is my major point.

I am concerned about the implementation of user-fee legislation in a timely way, and the question of what it does to the rest of the Corps' budget and to the committee's prerogatives. I think I will leave that and go on to some other things.

GLOBAL WARMING

What are we doing about global warming? We have heard a lot about the extremes of more and less water at various times as a result of the increasing temperature of the earth, something we have been able to document in the last 10 years fairly clearly. I wonder what the Corps' role in doing R&D is here?

Mr. PAGE. We have been represented by Corps people in these meetings on global warming, through the Intergovernmental Panel on Climate Change. As far as our research and development effort is concerned, I don't think that we are working at this time on any specific area of global warming.

General HATCH. In our studies of coastal processes, we have spent a very modest amount of money on assessing effects of sea level rise associated, to some extent, with global warming, on our coastal projects. We have determined that based on the lives of our projects, there is no effect that we really need to be concerned about.

For this year, we have requested $350,000 to begin a more comprehensive look at global warming, focusing on needs of our future projects. Our efforts will not be nearly as broadly gauged as the program the President proposed yesterday. Nevertheless, this is the first time we will be taking a look at it and the development of future projects.

Mr. FAZIO. I think it could have a very significant impact on the Corps, if, in fact, our estimates are true and the environmental consequences that we fear develop. I would hope that the Corps would participate in broader initiatives.

SAN FRANCISCO BAY AREA DREDGING

I have only one minute left. Let me conclude by saying that I really appreciate the interest that the Corps has in the dredge material disposal crisis in the San Francisco Bay Area. We are losing a significant amount of money each year already because of the failure to find a dredge disposal solution. We are going to have to have full Federal funding.

We are going to have to have a local political consensus. We realize that a few individuals have, perhaps in theory at least, injured the overall benefit to the Bay Area by taking rather rigid views on some of these issues. We want you to work with us, and we need the Corps to be willing to fund adequately the efforts that need to go on technically to satisfy some of the environmental opposition, so that the variety of ports in the Bay Area can develop as they must, not only for the local economy, but for our international trade picture as well.

Mr. PAGE. May I say something, Mr. Fazio, regarding that? We look at that particular project as sort of a new beginning, in a way, for us, for which we do have partnerships, and are talking about partnershipping. We look to sponsors to be more active with us and to take the role that they should. They are starting to do that. We hope that we can bring a consensus, particularly here.

Mr. FAZIO. I understand there is no legislation in place requiring local cost-sharing. Is it the Corps' policy to require local cost-sharing on these initiatives?

Mr. PAGE. Yes, local participation.

Mr. FAZIO. It varies from 100 to zero percent around the country. Is there going to be a consistent policy here?

Mr. PAGE. I would think that there is.

Mr. FAZIO. It sounds like it is going to be whatever you can work out.

General HATCH. In many cases, it would depend on the authorization language and law of a project and who is responsible for what. In this case, I don't believe any of that applied, and we felt this was an appropriate share. It is basically 80 percent Federal and 20 percent——

Mr. FAZIO. Shouldn't Congress provide some guidance in this area?

General HATCH. We always listen very carefully to your guidance.

Mr. FAZIO. I hope you are hearing me.

General HATCH. On that very problem, I believe that the dredged material disposal problem is the Corps' number one environmental challenge nationwide in the pursuit of our traditional maintenance and construction work for any type of purpose—our number one problem.

Mr. FAZIO. I have additional questions for myself and Mrs. Pelosi to be answered for the record. Thank you very much.

Thank you, Mr. Chairman.

[The information follows:]

SAN FRANCISCO BAY DREDGING CRISIS

Mr. FAZIO. We are fast approaching the time when a decision must be made about dredge disposal site for Phase I of the Port of Oakland deepening project. If an interim site is not found in the very near future, the Port will begin to lose a significant amount of business to the great detriment of the Bay Area.

Economic Impact of Port of Oakland:

$12 to $14 billion of cargo a year moves through the Port of Oakland of which over 60 percent is in the form of U.S. exports.

55,000 people are employed by the Port and Port-related maritime activities.

The overall economic impact of the Port of Oakland is $4.2 billion.

And, again, if the Phase I is not undertaken immediately, there are shipping lines which are, as we speak, studying ways to divert incoming cargo to Southern California and sen normal Oakland cargo by rail because of the anticipated delay in the completion of the Phase I project.

The Port, with the concurrence of the Corps, pursued use of the BIB site. The Port was stopped by action in state court after it had prevailed federal court.

The Port of Oakland also pursued land disposal upland in the Delta, in my district. Port received 5-0 endorsement from the Central Valley Regional Water Quality Control Board, environmental support, but still couldn't get a site designated because of some delays in Sacramento and San Joaquin Counties.

I agree that project sponsors need to rally political support for projects such as the dredging project and maybe there have been some cases where sponsors did not adequately defend Corps decisions. But it seems to me that you cannot put the political coalition building before the formation of sound technical solutions that can stand up to public scrutiny.

SAN FRANCISCO BAY/PORT OF OAKLAND

Mr. FAZIO. Regarding the San Francisco Bay Dredging crisis, what specifically has the Corps done since we were here last year to provide the technical support for the Port of Oakland to complete the first phase of its federal project? Have you done any technical work to help the Port find a disposal site that can be approved by the federal, state and local interests and regulatory authorities?

Mr. PAGE. Implementation of the first phase of the Oakland Harbor Project is a task that the Port undertook to perform on its own in accordance with a Section 215 Agreement, under PL 90-483 as amended, with the Federal Government. During the last year, the Port concentrated its efforts to obtain the necessary permits from state agencies to place the dredged material on Twitchell and Lower Jones Tract.

The Corps has continued with technical work such as material testing from the channels to be deepened; testing of the material at our Waterways Experiment Station to determine long term impacts of upland placement of dredged material; and preparation of a Section 204(e)' report under PL 99-662, which is required in order for the Corps to maintain the Phase I Project, after the Port constructs it.

The Corps has brought the Port and the Redwood Sanitary Land Fill owners together, and participated at their initial meeting, in order to explore the feasibility of taking some of the dredged material to that facility. The Corps has completed environmental reviews for disposal of dredged material at Twitchell and Lower Jones Tract Islands. This is a prerequisite to modification of our Section 10 permit to the Port of Oakland once it receives the final local and state permits.

Mr. FAZIO. What are the leading candidate interim disposal sites?

Mr. PAGE. The leading candidate interim disposal sites are:

1. Site B-1B in the Ocean
2. Twitchell Island and Lower Jones Tract in the Delta
3. Alcatraz site in the Bay
4. Redwood Sanitary Landfill in Marin County
5. Site 1M in the Ocean

The only approved sites are Alcatraz and the B-1B interim site currently under litigation; other sites may need 1-1/2 years of study prior to approval.

Mr. FAZIO. What is the Corps currently doing to identify such an interim site?

Mr. PAGE. Numerous efforts have been made in the last two years by the Corps and the Port to define disposal sites for Phase I of the Oakland Harbor Project. These locations included several ocean sites (M1, B-1, and B-1B), new in-Bay disposal sites as delineated by our consultants, PTI Environmental Services, and upland disposal sites as defined by Ogden Beeman & Associates as well as on Twitchell Island and Lower Jones Tract. (Copies of these reports are available for review.) All of these sites have encountered opposition from state and county regulatory agencies, and the State court, or would require at least one to two years to develop. Currently, the Corps has initiated coordination between the Port of Oakland and Redwood Sanitary Landfill for upland placement of dredged material.

Cost Participation. Last year, the Committee provided $5 million to the Corps to undertake studies necessary to complete the long-term Disposal Management Plan for all of the projects in the Bay. As I understand it, the South Pacific Division has been told that they could have only $2.5 million in fiscal 1990 and that the remaining $2.5 million should come from "project beneficiaries" in fiscal 1991.

Mr. FAZIO. Under what authority is the Corps making this new financial demand on the project sponsors?

Mr. PAGE. We consider cost participation in long-term management studies to be critical to assure a regionally acceptable solution to dredging management issues. Elsewhere we have successfully accomplished the Puget Sound Dredged Disposal Analysis (PSDDA) with EPA providing 15% of the funding and the State of Washington 20%. The Commonwealth of Virginia cost shared the disposal study for the Norfolk Harbor dredging project, while the Port of Baltimore fully funded the Baltimore Harbor long terms disposal study. Environmental issues, particularly the competing interests we face in maintaining the navigation system and protection the environmental resources, can best be addressed, in our experience, by cost participation in the development of the broad regional management programs for our ports. Cost participation in this study is based on our authority to accept contributed funds pursuant to Section 4 of the Rivers and Harbors Act of 1915.

Mr. FAZIO. Will the Corps obligate monies for efforts to identify an interim site prior to reaching an agreement with the local sponsors on "cost Participation"?

Mr. PAGE. On November 7, 1989, we received a request from the Port of Oakland to separate its project from the LTMS process which will identify solutions to the overall dredging and disposal program for the San Francisco Bay region. The decision on the Port's request is being withheld until schedule and cost data for the LTMS are available. We expect this to occur within the next 30 to 60 days. We also expect the work plan for the LTMS to be finalized about the end of March. Until that time the Port is pursuing Phase I (to minus 38 ft.) of its deepening project under the Section 215 agreement. There are a number of potential interim disposal sites under consideration, including Twitchell and Lower Jones Tracts in the Delta, Redwood Sanitary Landfill north of Novato, Cullinan Ranch, Alcatraz and the ocean. If the Corps pursues the overall 42 ft. project, we anticipate that a General Design Memorandum could be prepared and the project would be available for construction in the 1992-1993 timeframe.

Mr. FAZIO. Have any of the fiscal 1990 monies been spent yet and for what purposes?

Mr. PAGE. Funds were expended for interagency coordination, continuation of study of in-bay disposal alternatives and monitoring of the Alcatraz site. The District is authorized to develop workplans and commit FY 90 funds for studies and other activities in connection with the LTMS program. Obligations will take place following ongoing discussions between the LTMS management member agencies (i.e., Corps, EPA, RWQCB and BCDC) and other LTMS participants.

Mr. FAZIO. Does the Corps view "cost participation" as cash contributions only? Is the Corps willing to consider in-kind contributions of work carried out in coordination with the Corps and EPA?

Mr. PAGE. The Corps will accept cash contributions, in-kind services or both as "cost participation". Of course, such in-kind services or studies must directly contribute to the activities and studies in our approved work plan for the Long Term Management Strategy (LTMS). The Corps acting as the manager and overall integrator of the LTMS has the lead in the process. However the EPA has the lead for ocean studies with Corps as principal contributor.

Mr. FAZIO. How quickly can an interim disposal site be identified and made available for use by the Port of Oakland and others?

Mr. PAGE. Currently there are four active dredged material disposal sites in the S.F. Bay Area. These are: San Francisco Bar; Alcatraz; San Pablo Bay; and Carquinez. Of these, only

Alcatraz would normally be considered for Oakland material. Restrictions which have been in place for many years limit the S.F. Bar Site to sand only and the other sites are limited to material dredged upstream of the disposal site.

If the Alcatraz site is used, the material to be dredged will require chemical testing which can be done in 8-12 weeks; if biological testing is required, another 3-5 months will be required (with current known criteria). Processing of a Section 10 Permit by the Corps would take an additional 8 weeks after testing is complete. The obstacle to the use of these sites is the public perception that the placement of material at these sites is detrimental to the bay environment, and the pressure put on the State regulatory agencies to limit dredged material placement in the Bay.

Designation of any new interim disposal sites would require one year or more for land disposal, one to three years for an in-bay aquatic site and two to four years for an ocean site. These time estimates are based on the assumption that testing is completed satisfactorily and that environmental documentation is completed.

Mr. FAZIO. What level of funding will be required in fiscal 1991 and over the next several years for the designation of an ocean disposal site?

Mr. PAGE. For the ocean site designation program as envisioned by the Corps, slightly less than a million dollars will be required; however, the program as envisioned by the EPA, which is more dependent on acquiring detailed field data, is estimated to cost more than four million dollars. Ongoing discussions between the Corps and EPA, as well as with our sister agencies and other interested parties, are anticipated to resolve these differences. For the Corps in FY 91, additional funds may be required for coordination and study conduct beyond that presently available (i.e., no funds are scheduled because cost sharing is envisioned to meet our funding requirement). Our expenses for the ocean designation process coordination and technical work alone are estimated to be a half million dollars in FY 91.

Mr. FAZIO. How does the Corps envision apportioning the costs for an interim site and an ocean site among the local beneficiaries?

Mr. PAGE. Our original guidance to the Division Engineer proposed the following distribution of LTMS study costs: Corps 50 percent, Navy 20 percent, EPA 10 percent and other non-federal

organizations 20 percent. Based on an estimated study cost of $5 million the Corps would be responsible for $2.5 million, the Navy $1.0 million, EPA $0.5 million and non-federal contributors $1.0 million. The exact amounts plus any contributions with in-kind services will be delineated in a cost participation agreement to be developed by the Corps and the other contributors. If an interim site is utilized for the Oakland Harbor project, costs will be allocated in accordance with the provisions of the Water Resources Development Act of 1986.

Mr. FAZIO. What steps is the Corps taking to expedite the designation of an interim and an ocean disposal site?

Mr. PAGE. We have undertaken a number of studies to identify sites other than the existing in-Bay disposal sites. We have conducted a survey study assessing the potential for use of new in-Bay and upland sites both surrounding the Bay and in the Delta. In addition, we have conducted and participated in meetings to discuss the feasibility of placement of dredged material at Hamilton Field and Cullinan Ranch. More recently, the South Pacific Division convened the LTMS Executive Committee to organize the regional Long Term Management Strategy (LTMS) for the disposal of dredged material. At a 25 January 1990 meeting of the LTMS Executive Committee, it was decided that EPA will be the lead agency for ocean disposal site designation.

Mr. FAZIO. Does the Corps consider ocean disposal infeasible? If so, why?

Mr. PAGE. The LTMS will evaluate a broad array of potential ocean, in-bay and upland sites to determine economically feasible and environmentally acceptable dredged material disposal locations. Ocean disposal is an option. We are very concerned that we carefully weigh differences in economic costs among the alternatives against differences in environmental impacts and arrive at the best overall balances and thus avoid costs which are not justified by proportionate benefits.

MAGLEV PILOT PROGRAM

Mr. FAZIO. California is very interested in the Corps' MAGLEV pilot program. A California-Nevada Super Speed Train Commission has been established to explore the feasibility of establishing a MAGLEV system between Los Angeles and Las Vegas, with various commuter stops as well. Has the Corps been able to use the $1 million provided in fiscal 1990?

Mr. PAGE. Pending passage of legislation authorizing the Corps to proceed with the proposed MAGLEV pilot program, the Corps is limited to accomplishing only preliminary planning and coordination efforts in preparation for this mission. This preliminary work represents approximately one-half of the FY90 appropriation, or $500,000. Detailed technical work, including contracts and interagency transfers, will be deferred until the authorizing legislation is enacted.

Mr. FAZIO. What is the status of interagency agreements that will be necessary to carry out this project?

Mr. PAGE. The Corps has been working with the Department of Energy to draft a Memorandum of Agreement for cooperation on MAGLEV, including the support of the national laboratories that are under the control of the Department of Energy. A draft Memorandum of Agreement with the Environmental Protection Agency is also being developed. Separate Corps agreements with other Federal agencies involved in MAGLEV may be forthcoming in the future. However, with the recent formation of the Interagency MAGLEV Coordinating Committee with the Department of Transportation, the Department of Energy, the Environmental Protection Agency and other Federal agencies, it may be possible to develop a single interagency agreement among all the Federal agencies involved in the MAGLEV program.

Mr. FAZIO. Will additional legislation be required for the agencies to carry out this pilot program?

Mr. PAGE. The Corps will need authorizing legislation in order to proceed with detailed technical work on MAGLEV and to enter into cost-shared partnerships with private industry to develop concept designs in the FY91 and FY92 timeframe. We have not reviewed the status of other agencies' authorizing legislation. The unified Federal plan for MAGLEV, which is presently under coordination with the other Federal agencies, provides for a major decision point in FY92 on the potential of

MAGLEV in this country. If the decision is to proceed with a pilot program for the development of a second-generation U.S. MAGLEV system, and if there will be a significant Federal role in that development, then we will evaluate whether additional legislation will be required to proceed into the design and construction of the operational MAGLEV system.

Mr. FAZIO. How much funding do you anticipate requiring to complete the pilot project? How long is the pilot project anticipated to take to complete?

Mr. PAGE. As an approximate estimate, it may take one billion of public and private money and seven to nine years to complete a pilot program that would develop, construct, test and evaluate a second-generation U.S. MAGLEV system so that it would be ready for commercial implementation in the U.S. by the year 2000. There are many factors that will affect Federal outlays for this program. The two most important are the roles of the public and private sectors and the nature of the first demonstration system. It is hoped that the private sector will be able to accomplish the majority of the actual design and construction work, with only a limited Federal role in the later phases of the program. The Corps has initiated a dialogue with U.S. industry to determine the appropriate public and private sector roles; these will be better defined during FY91 and FY92. The total program cost will also be influenced very directly by decisions on the length and location of the first system to be built. Both the Germans and Japanese invested heavily in full scale test facilities, but it may be possible for the U.S. to benefit from their experience and to move from scale model testing directly into initial commercial operations. So doing could reduce costs substantially. Likewise, the length and location of the first demonstration route will affect program costs, and these decisions in turn will be dependent on the nature and amount of private sector support for the program.

Mr. FAZIO. What is the next step in the development of a second generation MAGLEV system?

Mr. PAGE. In FY90, the Corps is preparing a comprehensive work plan for the entire pilot program and the Department of Transportation is preparing a preliminary feasibility assessment of MAGLEV's potential in the U.S. During FY91 and FY92, the coordinated Federal effort will focus on more detailed assessments of the market and technology for MAGLEV and on developing concept designs for the second-generation system. The concept design portion of the program will be managed by the Corps and has three goals: to stimulate U.S. industry to begin the necessary research and development on MAGLEV technology, to provide input to the decision process on the capability of U.S. industry to develop our own domestic MAGLEV system, and to get a head start on the development process necessary to leapfrog the foreign competition.

If the outcome of the Federal assessment process is positive, and if Congress and the Administration decide to proceed with the pilot program after FY92, then the next steps would include design, construction, testing and evaluation of a second-generation demonstration system. The program will be designed for maximum private sector involvement, including effective technology transfer to U.S. industry throughout the entire process.

Mr. FAZIO. What are the characteristics of a second generation MAGLEV system?

Mr. PAGE. A second-generation U.S. MAGLEV system must offer significant advantages over available foreign technologies, either in terms of improved performance or reduced costs. We view the German Transrapid system, which uses conventional magnets in an attractive electromagnetic design, as representative of first-generation technology. The German system has already been refined and may therefore offer only limited potential for significant second-generation improvements. A prototype has been developed in Japan using low-temperature superconducting magnets in a repulsive electrodynamic design. This system still needs refinement and is probably ten years away from commercial operations. Although the Federal assessment will address both types of designs, and we cannot prejudge the outcome of that assessment process, it appears at this time as if a superconducting design at low or possibly high temperatures offers the most potential to the U.S. in terms of ultimate performance, reduced costs and effective utilization of the strengths of U.S. industry.

Mr. FAZIO. When does the Corps envision the initiation of construction on a MAGLEV demonstration program?

Mr. PAGE. Assuming a decision in FY92 to proceed with a MAGLEV pilot program in the U.S., construction of the guideway and production of the first vehicles for the demonstration project could begin as early as FY95. West Germany and Japan already have a substantial lead in this technology and are continuing their development efforts. Consequently, many in industry believe there is a narrow window of opportunity for the U.S. reap the benefits of earlier work conducted in this country and to leapfrog the foreign competition. It will require a concerted effort on the part of U.S. industry and the Federal Government to determine the potential of MAGLEV in the U.S. and to follow through on the development effort to ensure a competitive commercial system by the year 2000.

Mr. FAZIO. What can the Corps do to assist high-speed rail or MAGLEV projects already underway by the states?

Mr. PAGE. As we learn more on the best technologies and markets for MAGLEV use in the United States, we will make this

information available to the states and regions already engaged in planning high-speed ground transportation projects. While we are starting the effort to develop a second-generation U.S. MAGLEV design, we recognize that there are efforts underway by the various states and regions to implement MAGLEV and high-speed rail systems in the near future using available technologies. The Corps may also be able to provide certain reimbursable planning, engineering, environmental and real estate assistance to state and local governments under the Intergovernmental Cooperation Act and other authorities.

Mr. FAZIO. Mr. Chairman, I would also like to request that the Corps respond for the Record to the attached questions submitted by Congresswoman Pelosi. Congressman Pelosi has been one of the leaders in our delegation of efforts to forge a solution to the dredge disposal crisis in the Bay Area, and the Corps' responses to her questions will help this Committee be helpful to the solving this problem.

QUESTIONS FOR THE RECORD FROM MRS. PELOSI

LONG TERM MANAGEMENT STRATEGY FOR SAN FRANCISCO BAY

The GAO, in its November 1989 report ("Water Resources: Problems in Managing Disposal of Material Dredged from SF Bay") stated that "The Corps' San Francisco District's efforts to evaluate and designate additional disposal sites began in fiscal year 1985. Four years later; progress has been minimal."

Question. Why was the Long Term Management Strategy with EPA halted. Why was there a sudden decision to halt this program in 1989?

Answer. Development of the Long Term Management Strategy (LTMS) was delayed for a period in the summer of 1989 pending a determination of the appropriate level of Corps' participation and to develop a strategy for our objective of financial participation from other federal and navigation interests in the study. It was perceived that a regional consensus was needed. I would like now to report that the study is being actively pursued by not only the Corps and EPA but with the active participation of the SF Bay Regional Water Quality Control Board (RWQCB) and the Bay Conservation and Development Commission (BCDC) - the cognizant regulatory agencies. Through a series of meetings we are developing a management framework and work plan that will guide the LTMS effort. The State of California, ports and environmental and development interests are also taking an active part and providing valuable input to our decision-making process.

Question. What is the revised timeline for completion? What steps are involved?

Answer. The revised timeline will be finalized upon the completion of our ongoing discussions with the EPA, RWQCB and BCDC as to the appropriate technical studies necessary to develop the LTMS. An interagency agreement detailing these studies and their estimated durations will be drafted and available for review at the LTMS Executive Committee meeting which is scheduled for the 27th of February. At that time, a coordinated draft timeline for the program will also be available. Both the technical studies listing and the timeline are scheduled to be finalized at the LTMS Executive Committee meeting now scheduled for the latter part of March.

Question. Why has greater progress not been made in designating a long-term site?

Answer. Funds were scheduled to conclude the Section 103 site designation process for the Oakland project in 1988, and we anticipated that only limited funds would be necessary for ocean site utilization once the 103 process concluded. (Note: EPA is responsible for Section 102 site designation.) When use of the designated 103 site was blocked in State Court, the Corps began to work with EPA to designate a 102 site by December 1991. However, since the Corps was not anticipating having to fund an ocean site designation process in 1989/90, no funds had been scheduled for this activity. To offset the funding shortfall, we have initiated the LTMS utilizing funds from Federal and State sources.

COST SHARING

You site the Rivers and Harbors Act of 1987 requiring cost-sharing.

Question. Were Bay Area Members of Congress informed?

Answer. No, madam, to the best of my knowledge they were not, because it was a delay, not a halt in the program.

Question. Why were we not informed when ocean studies, required to begin in June, 1989, were never begun?

Answer. Here, again, we experienced a strategy planning delay, not a halt to the program.

Question. What guarantee do we have that you will not withdraw support or future participation in the Long Term Management Strategy?

Answer. We fully support and promote the effort to develop a Long Term Management Strategy for dredging and disposal of dredged material from San Francisco Bay. We recognize that an implementable, economically prudent and environmentally sound LTMS is vital to the economic well being of the bay region.

Question. What funding do you think is necessary for the process of designating an ocean disposal site? For implementation?

Answer. The work plan for the ocean studies is being developed by EPA as the lead agency. The work plan scheduled to be completed in March 1990 will provide a basis for estimating the cost of the ocean disposal site designation and implementation.

Question. What is the Corps' cost sharing formula?

Answer. We have proposed the following distribution of LTMS study costs: Corps 50 percent, Navy 20 percent, EPA 10 percent and other non-federal organizations 20 percent.

Question. How did you calculate your share? EPA's share?

Answer. After an expenditure of $5 million, and an additional estimated requirement of an additional $5 million to complete the disposal management plan, it became critical to assess the remaining requirements of the DMP and we entered into discussions with the EPA at the Washington level. EPA expressed strong interest in the matter and advised they would be willing to contribute to the remaining effort. These discussions led to the development of the 80% Federal and 20% non-Federal distribution of costs, with the Corps allocation of 50% and the EPA allocation of 10%.

Question. If the EPA is considered the lead agency in the ocean designation process, how would you define the Corp's role?

Answer. We are developing a coordinated LTMS management structure and workplan that shows EPA taking the lead in ocean site studies, consistent with their responsibility for general use ocean site designations under Section 102 of the Ocean Dumping Act. The Corps will be a principal contributor to the study effort and will integrate the results into the overall LTMS. The state will be a principal contributor to in-bay and upland study efforts, with the Corps in the lead.

<u>BAY VS OCEAN LONG TERM DISPOSAL SITES</u>

The appears to be great reluctance on the part of the Corps to actively pursue designation of a long-term ocean, or off-the-shelf, disposal site.

THE GAO report confirms that there has been an unnescessary delay and recommended.

"To prevent future delays in the process for designating ocean disposal sites, we recommend that the Secretary of the Army direct the Chief, Corps of Engineers, to 1) evaluate alternative mechanisms for ensuring the safety of disposal operations on and off the Continental Shelf and 2) review and validate the model used as the basis for cost estimates."

Question. What steps are you taking to avoid any further delay in this process?

Answer. The Environmental Protection Agency has the responsibility for designation of general use dredged material ocean disposal sites pursuant to Section 102 of the Ocean Dumping Act. As part of the Long Term Management Strategy, we are working with EPA Region 9 to develop a study work plan, schedule and cost estimate to investigate potential near-shore, mid-shelf and off-the-continental-shelf sites. We expect this plan to be finalized about the end of March and the studies to commence shortly thereafter.

Section 102(c) of the Marine Protection, Research and Sanctuaries Act authorizes EPA to designate ocean disposal sites and section 102(a) (I) states that, in designating recommended sites, EPA shall utilize locations beyond the Continental Shelf whenever feasible.

Question. Do you consider an ocean site infeasible? Why?

Answer. The LTMS will evaluate a broad array of potential ocean, in-bay and upland sites to determine economically feasible and environmentally acceptable dredged material disposal locations. Ocean disposal is considered to be an option. We are very concerned that we carefully weigh differences in economic costs among the alternatives against differences in environmental impacts and arrive at the best overall balances and thus avoid costs which are not justified by proportionate benefits.

Question. Why has the Corps taken the lead in a process where it has limited jurisdiction?

Answer. The Corps is taking the lead in developing an implementable, environmentally acceptable LTMS which will investigate a broad array of potential dredged material disposal sites: ocean, in-bay and upland. As part of the LTMS work plan, Region 9, EPA will take the lead in conducting the ocean site studies, consistent with their responsibility for general use ocean site designations under Section 102 of the Ocean Dumping act.

Question. Why has the process overlooked EPA authority to review sites off the Shelf?

Answer. The LTMS process has not overlooked EPA authority. The workplan for the ocean site studies will include nearshore, mid-shelf and off-the continental shelf locations.

The GAO report also pointed out several disposal cost issues where the cost estimates for transporting dredged material to the ocean were flawed.

It was discovered that the district Corps used a model that has not been approved by the South pacific Division or Corps headquarters. It was also determined that the model contained a mathematical error in the formula used to compute the average amount of material that can be dredged per hour.

Question. How can you make a cost determination on ocean disposal versus Bay or upland disposal with a defective cost model?

Answer. The cost estimates used by the Corps in the Oakland Harbor Final Supplement 1 to the Environmental Impact Statement did contain a mathematical error. However, this fact does not however, reduce the value of the cost estimates if they are used for comparison, as they are presented in this document.

An estimate of this type contains many assumptions based upon professional judgment. For this reason, our estimates were prepared by a team made up of an estimator, a person with over 30 years experience in the dredging business, and a planner with extensive experience and training in economics. This team selected the types of tugs, barges and dredges to be used for the various haul distances and used the model to assist in the optimization of various equipment combinations and haul distances. In the end, each haul distance was optimized by the team to provide a comparable cost estimate for each dredge disposal scenario studied. A "mathematical error in the formula used to compute the average amount of material that can be dredged per hour," is not necessarily of consequence, given the complex nature of developing a detailed estimate for an activity in an area where very little practical experience exists. Correction of the error and subsequent reruns have shown this to be the case. Although the error affected the absolute costs of each scenario, it had no effect on the relative costs of the scenarios, and the cost comparisons are usable as presented.

The model used to produce the estimates was not approved by the South Pacific Division or Corps' Headquarters. This is true, but, there was not a requirement at the time. The San Francisco District is planning to validate this model to higher Headquarters' satisfaction before it is reused.

BAY DISPOSAL -- ALCATRAZ SITE

The GAO report sited the Corps' failure to carry out permit inspections, review the laboratories used for bioassay and sediment testing and the monitor disposal activities.

(The Corps' authority extends beyond permitting to move earth from one place to another; there must be some type of environmental monitoring program in place to anlyze dredging effects.)

Question. What steps are being taken to review the safety of current maintenance disposal (toxicity, turbidity) at the Alcatraz disposal site?

Answer. We have ongoing testing programs for dredged material characteristics under Clean Water Act (CWA), Sections 401 and 404, as well as field monitoring of water quality during disposal operations to provide us with data to help ascertain the safety of present practices. Our field monitoring also includes monthly hydrographic surveys of the disposal site to quantify bed movement, and field inspections of dredging and disposal operations to ensure compliance with permits and contract specifications. Furthermore, the Waterways Experiment Station, Vicksburg Mississippi, is reviewing the open literature with respect to toxicity and turbidity, analyzing those findings, and will report to us the potential impacts at the Alcatraz site. The report also will propose the appropriate field and laboratory studies to resolve technical uncertainty. Thereafter, the proposed studies, as incorporated by the LTMS work group, will be performed in order to aid in future decisions regarding continued use of the Alcatraz site.

Question. Have you initiated field studies to determine the dispersement of dredged material and to monitor the cumulative impacts of continued disposal at Alcatraz?

Answer. As mentioned in our last response, field and desk top studies have been performed to quantify material fate and impacts. In addition, a numerical model has been developed to predict sediment dispersion from the Alcatraz site. Unfortunately, northern California has not been receiving normal precipitation for the last several years, thus the model has not been calibrated for high flow events. Further field work will be necessary to complete development of this predictive tool. This work is still scheduled, but the final array of studies to develop a predictive tool must be agreed upon by the LTMS work group. The work group, using the aforementioned literature review and assessment of impacts, will determine what field work needs to be performed to investigate cumulative impacts at the Alcatraz site.

Question. Why was the Oakland Inner Harbor material unsuitable for Delta disposal? Would you consider this same material suitable for in-bay disposal? Why?

Answer. Oakland Inner Harbor material has not been classified as unsuitable for Delta disposal; however, there are concerns over the impacts of placing marine sediments in a fresh water environment (due to the impact of increased salinity and potential movement of trace metals). The material has been classified as a waste, under California law, by the Central Valley Regional Water Quality Control Board (CVRWQCB); therefore, the Port is required to obtain a waste discharge requirement permit from the CVRWQCB and

land use change permits from Sacramento and San Joaquin Counties. Obtaining these permits is a lengthy process which the Port is still pursuing. In addition, Contra Costa Water District (CCWD) has sued the Port on the grounds that the Port's EIR does not adequately describe the impacts of the Delta disposal operation on CCWD's water supply. The Oakland Harbor material was tested for ocean disposal based on current statutory guidance. All of the material from the channel was found to be suitable for unconfined ocean disposal, however, some of the material from the turning basin was found unsuitable for ocean disposal. Although the majority of the material has passed the ocean disposal tests, due to the current in-bay disposal sensitivity, it is believed that in-bay testing of all of the material should be performed before determining acceptability of material for in-bay disposal.

Question. Why does Alcatraz continue to be considered for more than maintenance disposal?

Answer. There are no other in-bay or ocean disposal sites available for central bay dredged material under present policy. Latest monitoring shows that the Alcatraz site, when properly managed, could accommodate more than just maintenance disposal. Since it is the most economical site, it is in the nation's interest to utilize it to its capacity. All material placed at Alcatraz must be tested to assure no violation of applicable water quality standards.

Question. With this record, and the lack of data on the impacts to the Bay, why has Alcatraz not been closed except for maintenance dredging, as the Regional Water Quality Control Board has recommended?

Answer. Without a designated offshore disposal site, new in-bay or upland sites, Alcatraz provides the only remaining aquatic disposal site for central bay dredging projects. All available data collected to date indicate that alleged impacts do not occur outside of the designated disposal site. All material (new work or maintenance) must be tested and receive a 401 certification from the State Water Quality Control Board. Historically, Alcatraz received both new work and maintenance dredged material; with scheduling to insure that the site is not overloaded, Alcatraz can continue to accommodate both new work and maintenance material in the future.

Mr. BEVILL. The Chair recognizes Mr. Thomas.
Mr. THOMAS. Thank you, Mr. Chairman.

WETLANDS ISSUES

Let me add my welcome. I would like to take my time this morning to discuss with you some concerns I have on the wetlands issue. After some 46 years of living in a part of the country where we have ardently sought the destruction of the remaining wetlands that we inherited, I am not only beginning to hear a lot about it in my own district, but around the country. Wetlands seems to be sort of a buzzword. I am glad to see it finally because, when I look back on this country's legacy of natural resources, we probably have not treated any with more indifference than we have wetlands resources.

About the time that we are just poised to destroy what remains, I am encouraged that we are finally deciding that these are valuable resources. They play an extremely important roles in many of the life support systems vital to live on this planet.

NEED TO COMPENSATE WETLANDS OWNERS FOR PRESERVATION

So, I think maybe we are turning the corner here. But there is a complication to preserving our wetlands, and I think this is why we are hearing so many complaints. In most instances the wetland is owned by a private entity who bears the responsibility of maintaining this resource and paying the taxes, but gets very little of the immediate returns that are vital to the society at large. I want to ask a question of you. Are we at the point where the country realizes that, if the public at large is really the recipient of the benefits, we are willing to help, in some way remunerate those who own these wetlands for the expense of caring for them and maintaining them for future generations?

Mr. PAGE. The answer to that, Congressman, up front, is yes. The follow-up to that is we have yet to establish that wetland policy. The Domestic Policy Council on Wetlands is working on that now.

I could not answer any further than that at this point.

NEED TO PUT ECONOMIC VALUE ON WETLANDS

Mr. THOMAS. Let me move on here. As I see it, here are a few things we are going to have to have. Of course, we need a method of assessing and evaluating the wetlands according to size and location, putting some kind of value on them. And then, there is the need to identify them and also, at the same time, to come up with a workable mitigation program.

As much as I am committed to the saving of our wetlands, and I've watched their destruction throughout my entire life, and it was always a sad occurrence, the truth is that we will need to compromise some wetlands. There will be times when the economic benefit and the public interest will outweigh the functions of some wetland systems, if we structure some reasonable criteria for evaluating that.

NEED FOR REASONABLE WETLANDS LOSS MITIGATION POLICY

And so, this is another point here. Are we ready to move to a phase to where we can establish reasonable mitigation policy that is workable, that is responsible and sensible? If we are going to have a mitigation program, we have to know more about how to create wetlands. Are we putting enough money and emphasis on that? That is where the real crux of the issue lies.

Mr. PAGE. Let me just answer up front. Looking at the overall policy of no net loss of wetlands, there must be an economic balance. I think our MOA pointed that out. There has to be a weighing of wetlands. There is a difference in wetlands; all are not created equal. I say that because there has been a lot of comment, particularly by Governors, about the weighing of wetlands. This has to be part of the equation.

Next, they are looking at banking. That will probably answer the other part of your question. As we begin to get input from regions and States, I don't see how, and I don't believe any of us see how, we can develop a blanket policy of no net loss, and mitigation of damage and restoration of wetlands, because, simply put, Arizona is different than Georgia.

So, we have to work with a policy that will be more regional or even more statewide to give that balance that you are talking about.

WETLANDS CREATION

Mr. THOMAS. I am not interested in just preserving wetlands with no net loss. I think we need to recreate some of our lost wetlands. There are valuable gains to be accomplished by that. I think we have repositories of wetlands that have been drained by ditching, and much of the vegetation still stands there. But with the mere closing of a ditch or the change of the hydrology these areas would be restored to wetlands.

We have to have incentives.

NEED FOR FAIR REGULATION OF WETLANDS

We are all aware of who destroyed the wetlands—basically, who the large driving forces were. But what exists in our law today creates inequities allowing some to compromise wetlands while imposing exorbitant penalties on others. This is putting the public in controversy. Why are some individuals deprived of the right to use their land and slapped with exorbitant fines while they see large interests headed hell-bent, with exceptions under the law? Who is responsible?

Mr. PAGE. Could I use the word "we"?

Mr. THOMAS. Yes, sir, as Pogo says.

Mr. PAGE. What you said is true. I think I know what you are referring to. We have seen some get tremendous penalties and others go without them. But, until all of the agencies involved reach some consensus on how to weigh and measure, we are going to have to prosecute and will continue to have the problem. That is why it is so important that the EPA, Corps, and all other agencies work together on this. That is a very tough question to answer at this point.

General HATCH. Sir, at times we share that frustration. As you know, about 80 percent of our wetlands loss is attributable to activities not regulated by the section 404 program, but, because of the section 404 program, we frequently get tarred.

We do not assign ourselves these kinds of missions, as you know, but believe we are prosecuting our responsibilities under the program in a balanced, prudent, and responsible way. We have no authority over the other 80 percent.

The wetlands research program that we are requesting funds to begin in fiscal year 1991 will, in fact, address your concerns about mitigation in terms of ways to reestablish and strengthen the value of wetlands, and that sort of thing. We began that program, not under wetland research, but, under dredge disposal research for ways to find beneficial uses of dredge material. We have broken this wetlands piece out and are now recommending a three-year R&D effort to show how man can, in fact, enhance the value of wetlands. We will be working to prove that that can be done.

Mr. THOMAS. I think my time is up, but I think the moment is at hand. I think that all interested parties involved are concerned enough. It has required dissension here to get things done, but I look forward to working with you, and I hope that we can make this work.

Mr. BEVILL. Mr. Chapman?

Mr. CHAPMAN. Let me extend my appreciation and thanks for this opportunity to appear here today, and Mr. Page, a special thanks for your willingness to visit with me earlier. I appreciate the willingness to cooperate on some issues that have been concerns back in my Congressional district. I look forward to working with you, as well as the Southwestern Division. I feel confident that we will resolve the issues in a way that will be mutually beneficial. I want to say, for the record, a special thanks for your help, understanding, and assistance in that regard.

ASSESSMENT OF MANAGEMENT REFORMS

Last year, you outlined some management reforms adopted by the Corps to reduce the amount of time and cost needed to complete Corps projects.

In your testimony this year you point out that almost half of the projects have had an increase in cost. Almost that many have slipped in time. Last year, we talked about Initiative 88 and Focus 89, the goal being to eliminate the delays in planning and design phases, reduce the average time it takes to move from the reconnaissance stage to development, and things that would be helpful in keeping projects on schedule. What I would like to know is how you think that is going. Are you pleased with the results? You indicate this year there might be some more significant reforms and changes in management structure. Is that going the way you would like? Are you heading the way we all want to head?

Mr. PAGE. I would speak briefly to that and let the Corps follow on. We are disturbed by projects that go over budget and extend past their schedules, and we have witnessed a number of those. But this program will pick those up in the future. We certainly see an improvement.

We have talked to the private sector at length, and have spoken to CEOs of all of the major companies and other groups, and they are heartened by what we are doing. They are heartened by the partnership that the Corps is now bringing in, as discussed with Mr. Fazio.

I believe that the acceptance by the private sector, very early on, tells us that we are moving in the right direction, sir. General Hatch, do you wish to add anything to that?

General HATCH. To continue with that, all of the initiatives that you summarize, sir, are continuing to move forward. None of them, as we have determined, was not fruitful. None of the projects have gone through that full life cycle. We wish they could in two years. Early indications suggest that the consolidated Washington-level review and our focus on project managers' carrying projects through planning, design, and construction, were wise decisions. In fact, as indicated in my remarks, we are extending that project management process into all the other work that we do—military program work and that for other agencies. It is a proven technique for management.

We reorganized ourselves at the headquarters since we testified before you last, and, now, General Kelly has control of civil works projects through their full life cycles, unlike before when he did not have the design piece. Now, he is responsible to me, to you, for the full execution of those projects. It is going well.

SUPERCONDUCTING SUPERCOLLIDER

Mr. CHAPMAN. Last year I asked a question about the Corps' role, if any, in the superconducting supercollider. At that point, I think you had extended an offer of assistance, but had very little involvement. I note in your testimony this year, there has, in fact, now been some Corps involvement in the SSC and the development of a management plan. I don't want to get into a lengthy discussion of that, but can you be a little more specific on what has been the Corps' involvement, and what is your activity now with the SSC?

Mr. PAGE. Our involvement started off by assigning a senior project manager, one of the top men in the Corps, along with some associates, to see if we could set up a management system that would take the project through to its conclusion. We knew we could because some of us were personally involved in building the only supercollider built in this country, in Illinois. But we didn't get too far, for whatever reasons. I would like the Corps to respond.

General HATCH. Sir, we loaned a few experts to the Department. They worked essentially internal to the Department for a period of a couple of weeks to help develop a management plan, and then returned. The Corps of Engineers has not been asked to participate further in the management of that project.

Mr. CHAPMAN. I might offer your services once more to DOE. They, maybe, could use some of your senior level expertise. I would feel more comfortable.

Mr. PAGE. Thank you.

Mr. CHAPMAN. That is in the form of a compliment to you and concern for the project. But I appreciate that you have extended that offer to the Department of Energy.

RECREATION USER FEE PROPOSAL

Let me say that I perhaps differ with some of my colleagues on the issue of user fees. I think that a reasonable use of user fees for recreation at Corps projects is something we ought to explore.

Mr. Doyle pointed out that there were some twists and tweaks to last year's proposal. Can you expand on that, and your efforts to try to move that forward? What have you done that perhaps would preclude, or at least address some of the objections we heard last year?

Mr. PAGE. I defer to our expert.

Mr. DOYLE. At least at this table, perhaps; hardly in the entire process. There is no change from last year's recreation user fee proposal. The changes discussed earlier were to proposals for fees under the Floodplain Management Services and Planning Assistance to States programs.

Mr. PAGE. Does that respond?

Mr. CHAPMAN. Yes. I was just wondering if the proposal was different.

PRIVATIZATION OF RECREATION

Also last year, Mr. Secretary, you indicated that the Corps would put increased emphasis on private recreation through a planning initiative. There was funding in this year's budget for that. In response to my question, then, you indicated that the $1 million requested would be the total cost, and that the study would be completed by fiscal year 1991. I note there is an additional $800,000 request, and that the study has turned into a three-year study. I am keenly interested in that. I hope that is an indication that there is something fruitful coming from that study. I would ask you if you would comment, perhaps on where that may be going and what we hope to accomplish by that.

General HATCH. Sir, we have two study efforts going on. The one that would go on into fiscal year 1992 that we requested money for is an overall operations and maintenance study. The specific one on recreation concerning more private involvement—that study is ongoing. It is under the direct management of my deputy and will be completed this September. We will have results by September.

Mr. CHAPMAN. Do you feel good about the possibilities being developed there?

General HATCH. Yes, sir. They have been encouraged to be creative. I think we will come up with something good.

Mr. CHAPMAN. I think that is encouraging and can offer a wealth of new opportunities from that standpoint.

I have a few other questions that I will submit for the record. I appreciate this opportunity and again thank the panel for being here today.

Mr. PAGE. Thank you, sir.

[The information follows:]

PROJECT AND PROGRAM MANAGEMENT

Mr. CHAPMAN. Secretary Page, last year you outlined management reforms taken at the Corps to improve the amount of time and cost needed to complete Corps projects. For example, you highlighted what you called Initiative 88 and Focus 89. The goal was to eliminate delays in the planning and design phases and to reduce the average time it takes to move from reconnaissance studies to construction. You also outlined steps taken to keep projects on schedule and within budget. This year, on page 3 of your testimony, you indicate you are unhappy because a number of projects have higher than first predicted cost estimates or have slipped in meeting the project schedule. Project managers for major civil works projects was an initiative included in Focus 89 and is also the solution to cost overruns you propose for 1990. At this time last year you indicated over 200 projects had already been assigned to individual project managers or to a management team. How long has the concept of project managers been in actual practice at the Corps?

Mr. PAGE. We began to develop the concept in 1988 and have been implementing over the last two years. When we first began we were faced with a large number of projects "in transition", that is projects in construction, design, and even in study phases where costs and schedules had been developed using our older procedures. Application of new management techniques over such a broad spectrum of projects has been time consuming. The changes in cost and schedule observed in the FY 91 budget request are a reflection of this, and we are now in a much stronger position to bring about quantitative improvements in cost and schedule performance.

Mr. CHAPMAN. Does the Corps have any record of improved efficiency and cost management due to the use of project managers?

Mr. PAGE. Yes, we have seen improvements and expect to see many more. I think we all realize that it takes time to change an organization's culture, to reassign and train effective staff and otherwise accomplish newly established requirements. For example, the Corps' cost estimators have in the past been primarily required to provide government estimates for projects ready for construction bids. Our new system requires them to become active participants in the costing effort early in the design process.

Notwithstanding the start up obstacles, the Corps has made good progress. We are able to measure this progress by the things we are seeing happen at the monthly project review board meetings being held at district, division, and Washington headquarters level. These boards have forced a frequent, in-depth analysis by top management who are now routinely exposed to problems encountered by a project manager. Project issues can be resolved and partners can know what is happening and where they can obtain

information. Commanders are able to address difficult questions and adjust workloads and priorities frequently to assure maximum output for the work effort. We are also seeing improvements through concurrent review efforts and design initiatives.

Some of the specific examples we can point to include the Miami, Florida, harbor channel project. Here fast track design efforts are cutting design time in half, from four years to two years on a $70 million project. Another good example can be found in the Truth or Consequences, New Mexico reservoir project. During design, a fractured limestone layer was discovered in the spillway which required redesign. In the past, it is likely the district would have sought relief from cost and schedule constraints. In this case, they adjusted and prioritized district workload to assemble a redesign team who relocated the spillway to an area with a good foundation. This redesign actually saved money and was accomplished within schedule. An example of improved partner support can be found in the Central and Southern Florida project. This project, with a single local sponsor, consists of seven separate elements in all phases from planning through construction and covers some 16,000 square miles. In the past, the sponsor was passed from one district element to another in trying to monitor project actions. The sponsor now has a single point of contact for all phases of the project and can monitor project status and obtain financial feedback. As we continue to refine our project management system, we expect such successes to become the norm.

Mr. CHAPMAN. How do the "significant changes in management procedures" you refer to in this years testimony (page 3) differ from the management procedures you outlined before this subcommittee last year.

Mr. PAGE. The changes referred to in fact are those that we have been implementing over the last two years. The most significant difference is that we have moved significantly closer to full implementation of the changes, for example, we have in place a Deputy District Engineer for Project Management at every district and we are establishing and assigning personnel to the organizations that are required to make the system work at all levels within the Corps of Engineers. Our management changes include streamlining project review and decision procedures, assigning life cycle project managers to projects, holding monthly reviews at the district, division and headquarters level, requiring good, early estimates to control cost and schedule, and defining overhead measurement, thereby enhancing cost control.

AVERAGE COMPLETION TIMES FOR PHASES OF THE PLANNING PROCESS

Mr. CHAPMAN. I understand the Water Resources Act (WRDA) of 1986 (Public Law 99-662) outlined the amount of time certain planning phases of a project should take. Does the Corps keep records on the average amount of time it has actually taken to complete each phase of the planning process for a project? (For example, the usual time it takes to complete a reconnaissance, feasibility, and engineering and design phase?)

Mr. PAGE. The Corps does maintain records on average completion times for reconnaissance and feasibility studies, and through our life cycle project management system, for engineering and design. However, the Corps does not have summary data available for engineering and design at this time because of only recent implementation of detailed data gathering.

Mr. CHAPMAN. Would you please supply this information?

Mr. PAGE. WRDA 86, Section 905(b), stated that "The duration of a reconnaissance study shall normally be no more than twelve months, but in all cases is to be limited to eighteen months." Since passage of WRDA 86, we have reduced the average completion time for reconnaissance studies, reaching 13.6 months in FY 1989. For feasibility studies, the completion target is not specified in law, but is administratively set at 3 years. This average has also been reduced, reaching 4.3 years in FY 1989. The administrative target set for preconstruction engineering and design (PED) is also 3 years, but no current data is available.

Mr. CHAPMAN. How has this amount of time changed over the past 10 years?

Mr. PAGE. Since 1986, we have modified both our planning and budgeting processes in an effort to expedite the planning process and make more efficient the funding process by eliminating funding gaps. Thus, we are not able to truly compare the average times. Prior to 1986, however, the average time from study initiation to completion of the feasibility study was 6 years. Based on the averages from FY 1989, the comparable time would be approximately 5.4 years.

WETLANDS

Mr. CHAPMAN. In light of the Corps adoption last year of the Federal Manual for Identifying and Delineating Jurisdictional Wetlands, what instructions have been sent from Corps National Headquarters to district and division engineers regarding enforcement of the new guidelines?

Mr. PAGE. Corps field offices have been informed by memorandum from the Director of Civil Works that use of the manual is mandatory. During the summer of 1989, Corps field offices received training from Corps technical experts on the use of the manual. Six additional training sessions are scheduled for this year.

Mr. CHAPMAN. What steps has the Corps National Headquarters taken to monitor the implementation of the Manual?

Mr. PAGE. In addition to the training sessions previously mentioned, the Headquarters regulatory staff, on an ad hoc basis, discusses implementation of the manual with field offices. In 1989, we initiated a regulatory assistance program through our Waterways Experiment Station. This program allows Corps field offices to call in Corps wetlands delineation experts as needed to answer case-specific questions on the use of the manual. The Corps is an active member on an interagency wetlands delineation committee which also includes the Environmental Protection Agency, the Fish and Wildlife Service, and the Soil Conservation Service. The committee has developed a plan for formally evaluating the first year's use of the manual. This plan, which will be initiated this spring, includes surveys of Corps and other agency field personnel who have first-hand experience with the manual.

WETLANDS

Mr. CHAPMAN. Has the Corps recorded a decrease in the number of 404 permits granted since the Manual was adopted?

Mr. PAGE. The number of permits granted since the manual was adopted has not changed. It is probably too early to make any statistical inferences.

Mr. CHAPMAN. Please compare the number of 404 permits applied for and the number granted by the Corps in 1988 with the number of permits applied for and granted in 1989.

Mr. PAGE. In FY 1988, the Corps received 15,500 applications for permits and granted 10,300 permits and denied 500. In FY 1989, we received 15,300 applications, granted 10,100 permits and denied 500. The remainder in each year were either withdrawn, cancelled, or carried over to the next fiscal year.

Mr. CHAPMAN. Does the Corps keep records on the number of Section 404 permit applications made by persons engaged primarily in the practice of agricultural activities? If so, have records shown a decline in the percentage of permits granted and what was that percentage?

Mr. PAGE. We do not have such records.

WETLANDS

Mr. CHAPMAN. As a result of the Memorandum of Agreement (MOA) between the Environmental Protection Agency (EPA) and the Department of the Army on the type and level of mitigation under the Clean Water Act Section 404(b)(1) Guidelines, to be made effective on February 7, 1990, what changes do you anticipate regarding: the number of permit applications?

Mr. PAGE. This is difficult to predict. Conceivably, as the regulated community become more aware of the requirements of the Section 404(b)(1) Guidelines, which stress avoidance of impacts where practicable, the number of permit applications could decrease slightly?

Mr. CHAPMAN. The length of time necessary for processing such applications?

Mr. PAGE. We believe that the MOA will increase consistency and certainty in the regulatory program. In some cases, this should reduce processing time.

Mr. CHAPMAN. The number of permits granted?

Mr. PAGE. Currently, approximately 5 percent of all individual permit applications are denied. While this is extremely difficult to predict, we do not anticipate a substantial increase in permit denials. However, the current emphasis that is being placed on the 404(b)(1) Guidelines requirements may result in more denials in some Corps districts.

Mr. CHAPMAN. Staffing requirements by the Corps to enforce the Guidelines?

Mr. PAGE. In our view, additional personnel are needed to provide the level of enforcement necessary to ensure better compliance with Guidelines requirements. However, we do not believe that the mitigation MOA has significantly impacted this need. In fact, as part of a FY 1989 supplemental budget increase, the Corps initiated an effort to improve its permit compliance capabilities.

OPERATION AND MAINTENANCE PROGRAM - BACKLOG OF DEFERRED MAINTENANCE

Mr. CHAPMAN. Mr. Page, on page 8 of your testimony you indicate that there is a backlog of deferred maintenance at Civil Works projects.

How great is this backlog?

Mr. PAGE. The backlog of maintenance and repair expected at the end of FY 1991 is estimated to be $1.5 billion.

Mr. CHAPMAN. Is the deferred maintenance due to lack of funding or are there other reasons which caused the deferrals?

Mr. PAGE. A number of factors contribute to maintenance being deferred. Additional funds would certainly help to reduce the backlog, but that's not the total answer. The Corps would not be physically capable to perform all the deferred maintenance in any given year. Also, environmental conditions would first have to be met in some cases before the work could proceed.

Mr. CHAPMAN. What types of services are being neglected because of this deferred maintenance?

Mr. PAGE. The types of maintenance being deferred include dredging, structural repairs at locks, dams and hydropower facilities, road and bridge repairs and breakwater repairs. While there is a need to accomplish this deferred maintenance, I should emphasize that our budget request provides sufficient funds so as to continue to operate and maintain all justified projects at an adequate level of service.

Mr. CHAPMAN. How much funding would be required to perform current levels of operation and maintenance as well as perform the deferred maintenance?

Mr. PAGE. This is a difficult question to answer due to the dynamic nature of the O&M program and the influence that changing needs has on the backlog. In determining the amount of the O&M budget request, we take into consideration the size of the backlog and the criticality of the work associated with it. While a backlog exists and should be addressed, we believe the most critical maintenance is included in the budget request and that an increase at this time is not necessary to carry out a level of service that is adequate during these times of high budget deficits.

RECREATION USER FEE COLLECTION

Mr. CHAPMAN. Once again, you are proposing legislation to remove several restrictions on the ability of the Corps to collect recreation user fees. Are the restrictions you are in support of removing the same type restrictions proposed last year? If not, would you please outline how this legislative proposal is different from last year's?

Mr. PAGE. This year's legislative proposal removes the same restrictions as last year's proposal did. There is no change. The requirement to provide a free campground at each water resource development project with a Corps operated fee campground would be removed. Additionally, the restriction against charging fees for the use of certain day use facilities would be removed.

Mr. BEVILL. Do any other members of the panel wish to ask any more questions?

MAGNETIC LEVITATION PROGRAM

Mrs. BOGGS. There is only one thing I would like to ask, Mr. Chairman. I was very interested that both you, Mr. Secretary, and you, General Hatch, referred quite specifically in your presentations to the magnetic levitation program. Which agency has ultimate responsibility for MAGLEV research, and what exactly is the Corps' role in the project? Do you foresee the Corps' actually constructing a demonstration project?

General HATCH. I would say that, assuming magnetic levitation might enable a new mode of transportation in the United States, probably the long-term, enduring responsibility at the Federal level would reside with the Department of Transportation. Therefore, even though Congress has tasked the Corps of Engineers with, and provided us with some funds for the purpose of, planning, designing, and constructing a demonstration project, we have worked very closely with the Department of Transportation. We have established a partnership with them, and a management structure involving them at a level they are quite happy with, recognizing that, in the long term, they will be responsible for regulations and Federal roles associated with magnetic levitation.

Mrs. BOGGS. I notice that your testimony said this system has a promise of low operating and maintenance cost, minimum impact on the environment and high transport productivity. We think there would be no more valuable investment in our future than to proceed with this program as rapidly as possible.

General HATCH. Yes, ma'am.

EMPLOYMENT OF WOMEN AND MINORITIES

Mrs. BOGGS. Mr. Chairman, if I may, I would like to ask that the Secretary bring us up to date on the Corps' effort to hire and promote qualified women and minorities into management and technical positions. What is the percentage of women and minorities in the Senior Executive Service positions, and would you provide similar information for the mid-grade positions?

Mr. PAGE. Yes, ma'am. Chief, you are anxious?

General HATCH. Occasionally this member of the subcommittee asks a question associated with this topic. Representation of minorities and women does continue to improve in the Corps. Despite overall reduced numbers of total members in the Corps, the percentage of women has increased. Overall, for all pay plans at all levels, the percentage of women from 1988 to 1989 has increased by .4 percent. More interesting, however, at the grades 13 and above—the senior grades—that increase has been an even 1 percent. For engineers and scientists, the increase has been .4 percent. So, although the total employment has declined by 1,400 workers, including some women, the decline for women has been more modest, resulting in the increased percentages.

Mrs. BOGGS. Of course, thank you very much. From our country's point of view, of course, we have to recognize by the year 2000 that

half of the work force is going to be women and minorities. Where we need them the most is in scientific and engineering professions.

So, I would hope in your usual effort at coordinating with other agencies, you would make certain to go down into the elementary and secondary schools to make certain we prepare enough among women and minorities to take on the opportunities that you will be making available to them.

General HATCH. Yes, ma'am.

Mrs. BOGGS. I have some additional questions to be answered for the record. Thank you, Mr. Chairman.

[The information follows:]

QUESTIONS FOR THE RECORD FROM MRS. BOGGS

FLOOD PLAIN MANAGEMENT AND PLANNING ASSISTANCE FEES

Question. You are proposing a system of user fees for Flood Plain Management Services and Planning Assistance rather than the previously proposed cost-sharing. What effect will this have on the state and local governments who have used the Corps' expertise in the past?

Answer. We propose to use a variable fee schedule in combination with cost sharing agreements to recover a portion of the costs for Flood Plain Management Services. The variable fee schedule will be designed to recover funds for those activities that are more routine, can be completed with on-hand data, and can be provided in a relatively short period of time. Cost sharing agreements will be used for the more detailed type of technical work that require computations, analysis, and documentation, such as maps and reports. We plan to use only cost sharing agreements for Planning Assistance to States. To ease the impacts on state and local governments, we propose to phase in the level of cost sharing for each of these programs over a three year period, starting with 10 percent in FY 1991, 30 percent in FY 1992, and 50 percent in FY 1993 and thereafter. We expect that most states and local governments will continue to use the Corps expertise but will request smaller studies and less costly assistance after they have had an opportunity to adjust their budgets to provide the necessary funding for cost sharing.

WETLANDS

Mrs. BOGGS. Do you see the Administration's wetlands policy as being one of regulatory control of wetlands use or will a significant portion include efforts to create new wetlands or structural approaches to wetlands protection?

Mr. PAGE. We expect the Administration's policy to contain elements of both regulatory control and wetlands restoration through engineering means. The Corps is not generally authorized or funded to create, restore or structurally protect wetlands. However, our FY 1991 budget would fund several specifically authorized activities that would benefit wetlands, such as construction of the Davis Pond Diversion Structure in Louisiana, and environmental restoration activities under Section 1135 of the Water Resources Development Act of 1986. In addition, current law authorizes the Corps to regulate certain activities in wetlands under the Section 404 program.

The FY 1991 budget also proposes to initiate a focused three-year program to advance the science of wetlands restoration and creation. The Corps has had a modest active R&D effort under way now for more than a decade. What is known is that restoring and creating wetlands, in most cases, in far more expensive than to avoid and minimize wetlands losses in the first place.

WETLANDS MANUAL

Mrs. BOGGS. What has been the public's reaction to the interagency Wetlands Manual issued last year?

Mr. PAGE. Since the manual was adopted on January 10, 1989, we have received less than 15 pieces of correspondence expressing concerns over the new manual. Many of these raised the issue of the need for rulemaking pursuant to the Administrative Procedure Act. Only a few questioned the scientific basis of the three parameter approach to wetlands delineation. Currently, litigation is pending in two cases.

Mr. BEVILL. Mrs. Boggs does such a great job for this Nation, and especially looks out for the women of the Nation. I have told her that in the year 2000, that I will be asking the question, "Would you mind telling us how many men you have on your payroll?"

Does anyone else on the panel have any other questions? We are fortunate to have our good friend and colleague, Chairman Neal Smith, Chairman of the Commerce, State and Justice Appropriations Subcommittee with us. As a member of the Appropriations Committee, he is welcome to come and ask any questions he wishes.

So, the Chair recognizes Mr. Smith.

Mr. SMITH. Thank you.

I am glad to come back to this subcommittee that I have served on from time to time. Maybe I will serve on it again one of these days.

TREE PLANTING

Secretary Page, the President said we are going to plant one billion trees. What part are you going to play in that?

Mr. PAGE. We are not in the tree program, sir, not to my knowledge.

General HATCH. Yet.

Mr. PAGE. Yet.

Mr. SMITH. You haven't gotten instructions one way or the other?

Mr. PAGE. No, sir, not at this time.

Mr. SMITH. The Corps did plant a million trees at Red Rock Lake a few years ago, and it has been a wonderful project. Everyone brags about it when they see the trees on both sides, instead of what otherwise would be eroded areas. So, I would think that you would get into the tree business one way or the other, but you haven't gotten instructions yet?

Mr. PAGE. Not yet. Maybe the reason is that we have to define where the trees are going to be.

Mr. SMITH. You have a lot of public land on which trees could be planted?

Mr. PAGE. Yes, we do. I would think, probably, we would be activated in those areas.

Mr. SMITH. The President says the money is in the 1991 budget. He said the money is there, $269 million for that and some other purposes.

COST SHARING POLICY FOR RECREATION FACILITIES

He also said that we are going to improve the recreation facilities on public lands. I am referring now to two or three little items that are not in my Congressional district, but I know about them. One is a trail at Red Rock Lake and another one is a footbridge to cross the river to replace one that fell down, and another one is a bathroom facility at the project.

I understand that the money for this work is already there, your division office in Chicago, but that you won't release it because of something you call policy?

Mr. PAGE. Cost-sharing.

Mr. SMITH. But this is on public land, Corps land. Who is going to share the cost of a project like that on Corps land?

Mr. BEVILL. Don, you better get ready, they are passing the buck.

General HATCH. Sir, this cost sharing would be under a policy that has been, I would say, longstanding now that recreational improvements on Federal land be cost shared 50 percent with non-Federal sponsors, yes, sir.

Mr. SMITH. Who is going to share it? You are replacing a bridge that fell down on Federal land. Now, who is going to come in on your Federal land and replace the footbridge?

General HATCH. On other projects, improvements and expansions of the recreational opportunity have been cost shared with non-Federal sponsors such as counties, states and other non-Federal entities and governmental agencies. They have been doing so because the beneficiaries of that——

Mr. SMITH. What benefit is it to them? We are talking about a footbridge to go across from one side of the river to the other just below the dam. It is on Federal property.

General HATCH. I am not really capable of responding regarding a specific footbridge. We can provide that for the record.

Mr. SMITH. I am sorry you have not been able to respond because I have been talking to Secretary Page about this for several years. We have talked with your Chicago office and talked to everyone up and down the line and can't seem to get anything done. Secretary Page knows about it.

You were in a meeting over there at Senator Grassley's office. Everyone is signing off but you. But you are hung up on something you call policy. Where do you get this policy? Is it written that when the money is already allocated in the Chicago office that you can't use the money for this kind of a purpose on a Federal project?

Mr. PAGE. Yes, they came from Assistant Secretary of Civil Works.

Mr. SMITH. Where did he get them?

Mr. PAGE. They were generated there.

Mr. DOYLE. I don't know the details on this——

Mr. DOLA. Mr. Chairman, they are grounded in Public Law 99-662. The law—Public Law 100-202—did exempt this project for O&M but our interpretation, sir, is that construction cost sharing still applies, as I believe General Hatch accurately reflected.

Mr. SMITH. So this policy was generated in your office?

Mr. DOLA. It is true. And, sir, the reason we are concerned about it, the reason we have money in the budget for the civil works project is because we have been faithful to that cost-sharing policy established by——

Mr. SMITH. The committee put it in the budget for this purpose.

Mr. DOLA. Yes, sir, we know that. So it is a balance between the specifics of this project and the larger support we hope to maintain for civil works around the country.

REQUEST THAT ARMY REVISIT COST-SHARING POLICY

Mr. BEVILL. Excuse me. I just want to ask you, if you will, Mr. Secretary, revisit that interpretation—I think it is ridiculous—and write each Member of this committee—and Mr. Smith—a letter on where you are. I think it is ridiculous to say that the Corps has to receive matching funds for a project on its own land. I never heard of that before.

[The information follows:]

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

12 FEB 1990

Honorable Tom Bevill
Chairman
Subcommittee on Energy and
Water Development
Committee on Appropriations
House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

At the conclusion of the February 6, 1990, hearing on the Fiscal Year 1991 Civil Works budget, you asked that I write a letter to the members of the Subcommittee to provide a status report on the Des Moines Recreational River and Greenbelt, Iowa, project. This letter responds to that request.

Funds have been provided by Congress since Fiscal Year 1985 to construct recreation facilities at the Des Moines Recreational River and Greenbelt project. Three items of construction were mentioned by Chairman Neal Smith in his testimony: the Tailwater Trail Bridge, recreation trails, and a beach shower building relocation. The trail bridge and the recreation trails were authorized in Public Law 100-202, the Joint Resolution Making Further Continuing Appropriations for Fiscal Year 1988, in accordance with the September 1987 General Design Memorandum (GDM) entitled, "Des Moines Recreational River and Greenbelt, Des Moines River, Iowa."

Because cost sharing for these items was described in one part of the GDM as 50/50 cost sharing and in another as 100 percent Federal, it was our determination that the general policy of 50/50 cost sharing established by Congress in Public Law 99-662 should apply. However, it was recognized that congressional intent on this point was not clear.

In deference to the Subcommittee's representation of congressional intent and view that, in this instance, the trail bridge and other facilities should be constructed at Federal expense -- and the Subcommittee's willingness to provide additional language to that effect if necessary -- I am directing the Rock Island District of the Army Corps of Engineers to proceed at Federal expense with construction of these facilities to the full extent possible using funds previously provided for this purpose.

Sincerely,

Robert W. Page
Assistant Secretary of the Army
(Civil Works)

Mr. SMITH. And I want to specifically ask you to revisit it at this time because, as you are aware, I am sure, the President said that we are going to spend money and there is money in the budget to improve recreational facilities on public lands. Now he sets the policy, doesn't he? That is a higher authority, isn't it?

Mr. PAGE. We will, at your and the Chairman's request, revisit this issue. We talked about it I know sometime back in your office.

Mr. SMITH. As I say, it is not even in my congressional district. It just doesn't seem right. It isn't right.

The people in my district go down there and use those facilities. I wish you would revisit it, especially in view of the President's statement that there is money in the budget for 1991. This money has already been appropriated. The Corps is waiting to use it. The Corps has the money in Chicago. So I wish you would revisit that.

Mr. BEVILL. And if you need any language to help you interpret that, we will furnish that, too.

Mr. PAGE. Thank you. Yes, sir.

Mr. BEVILL. We are also pleased to have with us our good friend and colleague from the Appropriations Committee, Mr. Bob Livingston. The Chair recognizes you, Bob.

Mr. LIVINGSTON. Thank you very much, Mr. Chairman. It is a pleasure to be here with you and the committee. You all do such a great job for us in Louisiana. We have a lot of water problems and, of course, you take care of us under the guidance of my colleague Lindy Boggs, who has always leaped to the forefront of any problems we have. She handles Louisiana very well.

I thought I would come here and greet you, Mr. Secretary, and all the folks at the table. Now that you have been duly warmed up, I'll just throw in another little clinker. It is so insignificant that I hesitated to even come here, but it has been going on for a long time.

NEED FOR DREDGING OF PEARL RIVER TRIBUTARIES

Mr. Secretary, it involves only a mere $60,000 project, and that is not even worth taking the time of this committee, it seems. But, about four years ago, about 1,000 of my constituents wrote me and said they wanted the tributaries dredged out along the Pearl River. So we wrote a letter to the Corps and never got a response for a couple of years.

Then all of a sudden last year in January we heard that they were beginning to dredge the river and only had a window of two months for environmental reasons, but they were going to dredge the whole Pearl River channel. Then they told me for the first time they couldn't do my little tributaries because they weren't authorized. Well, we had never been told that. We thought that they were authorized.

We asked, "What do we have to do to get them authorized?" and were told, "You have to get Congress to pass a law." Don't you know, Mr. Secretary, that is exactly what we did. We went back with the help of Lindy Boggs and this committee and in the last appropriations bill, we got it authorized and appropriated. A little $60,000 dredging project. Boy, we were happy when we got it through and the President signed it into law.

Then we went to talk to the Corps and they said, "Well, we don't know if we can do that. We are not permitted by OMB." So, we went to OMB and they said, "We don't know if we can do it. We might need a study." And the Corps said, "Well, yes, we might have to do a study. But it won't take long." We were told that, at most, the study would take maybe a week or two. Well, that was in October. We are still told that the study might go on until March, the $60,000 will be gone soon and you won't have to do the project.

Mr. Secretary, I have a summary and other information which I would introduce for the record and for your purposes, I have a detailed chronology of this case which I would give to you for the Corps' use. I also have one for the record as well.

Mr. BEVILL. Without objection, that information will be made part of the record.

[The information follows:]

Cong. Bob Livingston

Corps of Engineers Hearing
2/6/90

I am here today to discuss $60,000 (as estimated by the Corps) worth of spot-dredging that this Subcommittee and Congress authorized and funded in Fy90 for 3 small tributaries along the West Pearl River between Louisiana and Mississippi.

You may not personally remember this project, but various levels of the Corps have been aware of this project since 1986.

The Corps has essentially thrown in one road block after another to keep this small $60,000 dredging project from getting started.

These road blocks continue to appear even after I followed the Corps' advice and had this spot dredging authorized by bill language that was incorporated in the Fy90 Energy and Water Appropriations Bill which became law on September 29, 1989.

Those who must be trying to kill this project by studying it to death, have likely spent more than the $60,000 the Corps estimated and Congress added above the budget to do it!

The following is a chronology of correspondence between my office and various levels of the Corps and this Administration regarding this project.

In October 1986, when I first wrote the District Engineer of Vicksburg requesting assistance for local requests for spot-dredging of several tributaries within the already authorized navigational main channel of the West Pearl River.

For some unknown reason, the Corps never reviewed or responded to this initial request. Neither my office nor local officials followed up, but the Corps later admitted that they (the Corps) "let this one slip through the cracks."

Local authorities and my office assumed that the Vicksburg District would address the dredging of these tributaries as part of a then ongoing study to justify re-dredging the already authorized main channel of the West Pearl River.

However, several years later in early 1989, when the Corps began re-dredging the main channel of the West Pearl, local residents and authorities called my office to ask when the several tributaries we had contacted the Corps about in 1986 would be dredged.

Despite 2 months of constant calls, meetings and letters in early 1989 between my office and the Vicksburg Corps; and, despite the fact the Vicksburg Corps admitted that my previous 1986 requests regarding these tributaries "had fallen through the cracks"; the Vicksburg Corps continued to maintain that they could only spot-dredge these tributaries if they had been specifically authorized by Congress.

In April, 1989, I testified for the record before this Subcommittee to request that authorization and funding for such spot-dredging be provided in the Fy90 Energy and Water Appropriations Bill.

Both the House and the Senate versions and the final conference agreement on the FY90 Bill included bill language authorizing and directing the Corps and the Secretary of the Army to perform maintenance dredging for these three tributaries. In addition, both the House and the Senate added $60,0000 above the budget request to the already authorized West Pearl River project to perform the additional spot dredging needed for these three tributaries.

Before and immediately after the President signed the Fy90 Energy and Water Conference report on September 29, 1989, my office and I began calling the Corps at every level (locally and in Washington) to ensure that this project proceeded expeditiously as part of the annual dredging the Corps was already doing on the main channel of the West Pearl.

Nothing happened...

On October 19, 1989, I wrote both OMB and your office requesting that the funds appropriated for this authorized project be allocated.

After more than a month, the reply I received from yo and from OMB was that vague environmental and cost sharing questions had to be addressed in a "brief" but prompt report to be prepared by the Corps.

I was almost_ready to accept this reply, for I was told in writing and over the phone that the report would be done "promptly" and was essentially pro forma.

My office and I have since been told by the Vicksburg Corps and others throughout the bureacracy that:

1) This "brief" report will not be completed by the Vicksburg Corps until sometime in March;

2) More cost sharing concerns are being raised for a project the Corps estimated to be only $60,000, and for which Congress added the funds above the Corps original budget request;

3) This spot-dredging, despite being authorized in statue by Congress, is not a requested project;

4) This project is strictly for recreational purposes, which it isn't; and,

5) Once the Vicksburg Corps completes their "brief" report, this report must go through the regular chain of command of the Corps that will take several more months to complete!

I wrote to you, Secretary Page, on October 19, 1989, to explain that these three tributaries are important not only for recreational access to the West Pearl River and surrounding Federal and state wildlife refuges, but also that these tributaries are used by the Corps for access to the authorized navigation channel of the West Pearl.

But, most important, I also explained that local police authorities need and use these tributaries as their main access routes to the West Pearl and surrounding refuges for search and rescue and drug and law enforcement efforts in Louisiana and Mississippi.

The frustrating thing about this matter is that my office and local authorities had followed routine procedures but still haven't gotten any results.

Mr. Secretary, I have been continuously bounced between the Corps and OMB, without result, for a mere $60,000 in spot-dredging for 3 tributaries which the Corps refused to dredge without specific authorization.

Congress has now specifically authorized this spot-dredging by statute as of September 29, 1989.

Congress has specifically appropriated the $60,000 for the project as of September 29, 1989.

An environmental permit had already been approved for one of the tributaries (Pump Slough) prior to the Corps' and OMB's insistence on further studies.

The Corps has probably spent well over $60,000 already just trying to kill this project.

Mr. Secretary, I am asking you to allow this project to move ahead now.

I am also requesting a meeting this week or next, but no later, with the people in your shop who can make a decision and give me some straight answers on this issue.

MEMO

Pump Slough, West Pearl River Tributaries

Chronology:

1) Oct, 7, 1986 - Article appeared in Times Picayune outlining access problems to West Pearl through Pump Slough. Pictured in the article are Sen. B.B. Rayburn, Rep. R. H. Strain and Police Juror Gary Singletary.

* 2) Oct. 14, 1986 - Received letter and petition from Gary Singletary, St. Tammany Police Juror, requesting support to have Corps of Engineers, Vicksburg District, dredge recreational areas on West Pearl. A question and answer proposal was also attached. This was prepared by the Corps. It stated that the proposal (dredging of West Pearl) "would provide total boat access for recreation-minded people to the man-made canal and the western edge of the Bogue Chitto National Wildlife Refuge."

* 3) Oct. 20, 1986 - Bob wrote letter to Col. Pat Stevens with attached correspondence from Singletary asking for info on the dredging of recreation area. Bob stated in letter that he supported limited spot dredging. On the same date, Bob sent acknowledgement letter to Gary Singletary. He stated in letter that "he will do whatever it takes to see that the necessary funds are appropriated."

* 4) Nov. 4, 1986 - Received response from Col. Stevens. His staff was instructed to review and respond by Nov. 14, 1986. Our files indicate that we did not receive a response nor was a follow-up initiated.

5) Nov. 18, 1986 - Times Picayune article "Corps agrees to dredge West Pearl." No mention of recreation areas.

*Some of the remaining dates were not documented, therefore, approximate time spans will be given.

6) Early January 1989 - Gary Singletary called district office and inquired about dredging of Pump Slough. At about the same time, Mayor Janice McQueen of Pearl River called and inquired about same. She indicated that she had many witnesses that heard Bob state that he will have Pump Slough dredged.

7) Jan. 9-13, 1989 - Rick called Vicksburg District and spoke with Jim Sherman. Jim briefed Rick on dredging operation and told him of Feb. 15, 1989 deadline due to spawning of sawback turtle. He indicated that he will get back with Rick to verify if it could be done.

* 8) Jan. 17, 1989 - Bob followed up to Jim Sherman with a letter asking that dredge request be granted. Copies were sent to Singletary and McQueen.

9) Jan. 20, 1989 - Rick mentioned Pump Slough again to Jim Sherman at Change of Command ceremonies, New Orleans District

10) Jan. 23-27, 1989 - Jim Sherman and Louis Logue called Rick on conference call and initially told him that Corps does not have authorization to dredge Pump Slough. Louis indicated that he would like to see it dredged for himself since this is the location that his survey boats were launched. Rick inquired as to how the Corps can receive authorization.

11) Early February, 1989 - Pat Smith, a St. Tammany resident, began to make inquiries about Pump Slough. Rick gave Corps explanation as to reasons why it would not be dredged. Mr. Smith called almost every day thereafter with each call becoming more hostile.

12) Feb. 6,-10, 1989 - Several other phone calls were made to Corps to encourage dredging.

* 13) Feb. 9, 1989 - Article in Times Picayune - dredging on Pearl ahead of schedule and $175,000 under budget. This prompted more phone calls as to why the extra time and money could not be used to dredge Pump Slough.

14) Feb. 10, 1989 - Bob personally called Col. Skidmore to make inquiries. Col. Skidmore and Jim Sherman were not in. Bob spoke with Col. Peterson who indicated that a meeting would be held the following Monday morning (Feb. 13) to discuss possibilities of dredging Pump Slough.

15) Feb. 13, 1989 - Col. Skidmore spoke to Bob in California. He told Bob that dredging could not be done and said that it would be like "paving someone's driveway during a highway project." Bob also phoned Pat Smith without success.

* 16) Feb. 14, 1989 - Article in Times Picayune on Pump Slough outlining residents' anger over the indication that it will not be dredged. Pictured in article is Pat Smith of Pearl River.

17) Feb. 15, 1989 - Rick spoke with Louis Logue and told him of the correspondence from our office to the Corps dating back to October 1986. Logue checked files and could not locate correspondence. He admitted that Corps "let this one slip through the cracks."

18) Feb. 15, 1989 - dredging ended as per agreement with Wildlife and Fisheries.

19) Feb. 17, 1989 - Times Picayune article - "Tammany may help dredging." Louis Logue, chief of river operations, was quoted in a meeting a day earlier that Congress did not appropriate money to dredge the slough.

20) Feb. 21, 1989 - Carol brought to office additional petition

requesting slough to be dredged.

* 21) Feb. 24, 1989 - Bob wrote to Col. Skidmore summarizing the Pump Slough issue and also expressing dissatisfaction with the way it was handled.

* 22) Feb. 25, 1989 - Times Picayune article - Police Jury to seek permits to dredge West Pearl. Corps officials were quoted once again that the river can't be dredged for recreation purposes without Congressional approval.

* 23) March 1, 1989--- District Engineer letter to Livingston explaining reasons for not being able to dredge tributaries of West Pearl River. This letter was in response to Livingston's Feb 13th conversation with Colonel Skidmore.

* 24) March 7, 1989---Letter from Livingston to Vicksburg District Engineer requesting further clarification and assistance to resolve spot dredging of Pump Slough and other tributaries.

* 25) March 17, 1989--- District Engineer letter to Livingston responding to Feb 24, 1989 Livingston letter.

* 26) March 22, 1989--- Reply from Vicksburg District to Livingston letter of March 7, 1989.

* 27) April 4, 1989---Livingston presents testimony to the House Energy and Water Subcommittee regarding importance of authorizing dredging of West Pearl tributaries for public safety, search and rescue and commercial uses as well as for recreational purposes.

28) June 28, 1989---House passes Fy90 Energy and Water Appropriations bill which includes bill language authorizing and directing dredging of Pump Slough and other tributaries of the West Pearl River. Appropriations of $60,000 above the original budget request is also provided.

* 29) July 27, 1989---Senate passes their version of the Fy90 Energy and Water Appropriations with identical bill language and appropriations regarding Pump Slough and other tributaries of the West Pearl River.

30) September 14, 1989---Congress sends the President the Fy90 Energy and Water Appropriations which includes bill language authorizing and directing the dredging of Pump Slough and other West Pearl River tributaries.

31) September 20, 1989---Livingston calls Vicksburg District Engineer requesting that dredging begin as soon as possible after the Fy90 Energy and Water Appros Bill is signed.

32) September 26-29, 1989---Calls by Livingston and his office to White House are made urging that the Fy90 Energy and Water Appros Bill be signed as quickly as possible.

* 33) September 29, 1989--- President signs the Fy90 Energy and Water Appropriations Bill, P.L. 101-101.

34) October 2-17, 1989---Livingston and his office continue to contact Vicksburg District and Washington level Corps about status of allocation of funds for dredging West Pearl River tributaries.

* 35) October 19, 1989--- Livingston writes Secretary Page and OMB Director Darman requesting allocation of authorized funds for

dredging these tributaries and explaining the importance of these tributaries for search and rescue, commercial, safety and recretional reasons.

* 36) November 30, 1989-- Livingston receives November 26, 1989 reply from OMB explaining that "environmental" and possible cost sharing concerns must be addressed in a "brief" report to be provided by the Corps.

37) December 6, 1989---Livingston's office calls Washington and Vicksburg Corps. Washington Corps claims funding allocation for tributaries will be sent to Vicksburg immediately, but funds cannot be spent until "brief" report required by OMB is completed. Vicksburg Engineer tells Livingston's office that report required by OMB is just a question of "checking" and "updating" existing information.

* 38) December 11, 1989--- Livingston receives December 5, 1989 letter from Secretary Page confirming that the Corps must "promptly furnish a letter report in order that a timely decision may be made on the most effective way to proceed" with the project.

39) January 2 thru Feb 1, 1990--- Numerous calls by Livingston and his office to all levels of the Corps, OMB and the Administration confirm that the "brief" or prompt report will not be completed by the Vicksburg District Engineer's office until sometime in March. In addition, the chain of command process after the District Engineer completes his report will take several more months.

* Enclosure

#2 ENC

RECEIVED
OCT 14 1986

ELIZABETH TEAGUE
PRESIDENT

HERMAN A. SHARP
VICE-PRESIDENT

FLOYD D. GLASS, DIST. 1
HERMAN A. SHARP, DIST. 2
JAMES A. "RED" THOMPSON, DIST. 3
WILL GRIFFIN, DIST. 4
OGIBE RICHARDSON, DIST. 5
GARY SINGLETARY, DIST. 6
C. J. DUNAWAY, DIST. 7

ST. TAMMANY PARISH POLICE JURY
P. O. BOX 628
COVINGTON, LOUISIANA 70434
(504) 892-2911

JERRY SCHWEHN, DIST. 8
BARRY BAGERT, DIST. 9
MARTY HOUSTON, DIST. 10
ELIZABETH TEAGUE, DIST. 11
EARL D. BROOM, DIST. 12
STAN OWEN, DIST. 13
ANTHONY ALFRED, DIST. 14

October 8, 1986

Dear Sir:

St. Tammany Parish is actively pursuing the expedition of maintenance dredging in the West Pearl River in order to enable the general public to utilize the 80 Square Miles of recreation area in the Pearl River basin. The entrances to the West Pearl River at the navigation canal and the West Pearl at the Town of Pearl River and Interstate 59 are at present blocked by silt, to the point that only small boats can be dragged into the West Pearl at both locations. Both of these sites are heavily used to access the Pearl River Game Management Area and the Bogue Chitto National Wildlife Refuge. These two areas are the main source of recreation for not only St. Tammany Parish, but they are heavily used by the Metro New Orleans area residents. The Pearl River Management Area is a major source of hunting, fishing and boating for New Orleans, Jefferson, St. Tammany and St. Benard Parishes. While the Bogue Chitto National Wildlife Refuge not only services these Parishes, it also offers convenient recreation for Washington and Tangipahoa Parishes, as well. The boat launches at both sites are very fine facilities and it would be a tremendous waste to have both sites become unusable.

St. Tammany Parish urges you to assist us in this problem in any way possible. It is our understanding that approval of the project will be requested in the near future by the Vicksbury District Office of the U. S. Army Corps of Engineers. The Corp does not foresee a problem with approval of the project as it is sorely needed. The Corps has stated that the funds will have to be appropriated; because their fiscal budget will not allow this project to begin.

St. Tammany Parish again urges your support for this necessary operation to begin as quickly as possible. If the entrances are not cleared in the near future they will become completely blocked in a very short time. It would create a great disservice to the sportsmen of Southeast Louisiana if these launches are allowed to go by the wayside.

Sincerely,

Hon. Gary Singletary, District 6
St. Tammany Parish Police Jury

HGS:lms

#3 ENC

ROBERT L. LIVINGSTON
1st District, Louisiana

APPROPRIATIONS COMMITTEE

PERMANENT SELECT COMMITTEE ON INTELLIGENCE

WASHINGTON OFFICE:
Room 2439
Rayburn House Office Building
Washington, DC 20515
(202) 225-3015

DISTRICT OFFICE:
111 Veterans Blvd
Suite 700
Metairie, LA 70005
(504) 589-2753

Congress of the United States
House of Representatives
Washington, DC 20515

October 28, 1986

Colonel Pat M. Stevens, IV
District Engineer
Corps of Engineers
P.O. Box 60
Vicksburg, Mississippi 39180

Dear Colonel Stevens:

Attached is correspondence from the Honorable Gary Singletary, a member of the St. Tammany Parish Police Jury. I support a limited spot dredging of the West Pearl River for the purposes of permitting greater utilization of the wildlife areas. I would appreciate any information you might give me concerning the cost of this very limited dredge work.

Sincerely,

ROBERT L. LIVINGSTON
Member of Congress

RLL/wml

Feb 27,89 10:14 #4 ENC P.01

DEPARTMENT OF THE ARMY
VICKSBURG DISTRICT, CORPS OF ENGINEERS
P. O. BOX 60
VICKSBURG, MISSISSIPPI 39180

REPLY TO ATTENTION OF:

November 4, 1986

NOV 10 1986

RECEIVED
14 NOV 86

Honorable Robert L. Livingston
House of Representatives
Washington, DC 20515

Dear Mr. Livingston:

I have received your letter of October 29, 1986, regarding the letter you received from Mr. Gary Singletary concerning maintenance dredging in the West Pearl River. I have tasked my staff to review the correspondence, and a response will be provided to you in about three weeks around November 14, 1986.

I appreciate your interest in the West Pearl River, and if we can provide any information on any other matter, please let me know.

Sincerely,

Pat M. Stevens IV
Colonel, Corps of Engineers
District Engineer

Feb 01,89 10:53

#8 encl

P.01

ROBERT L. LIVINGSTON
1st District, Louisiana

APPROPRIATIONS COMMITTEE

PERMANENT SELECT COMMITTEE
ON INTELLIGENCE

Congress of the United States
House of Representatives
Washington, DC 20515

January 17, 1989

Mr. Jim Sherman
Corps of Engineers
P.O. Box 60
Vicksburg, Mississippi 39180

Dear Mr. Sherman:

My District Representative, Rick Legendre, recently spoke to you about dredging the mouth of Pump Slouth on the West Pearl River. This particular area has created a problem for many boaters launching at the boat ramp near I-59.

My office has received several inquiries as to the possibility of dredging this area, therefore, it has obviously become a very important issue to many of my constituents. Since dredging is currently taking place in this vicinity, I am asking that this request be granted.

Sincerely,

ROBERT L. LIVINGSTON
Member of Congress

RLL/rl

cc: Honorable Janice McQueen
Honorable Gary Singletary

Dredging on Pearl rivers is faster than expected

ARA PAGOWES
Bureau

dredging project designed to
ore barge traffic to the Pearl
West Pearl rivers is further
g than Army Corps of Engi-
rs officials expected.

By the time a dredging vessel
ves the river system next
ek, a channel will be cleared
m Pool's Bluff, just south of
galusa, to Lake Borgne.

Some commercial interests
ould be able to use the river system for barge traffic immediately, corps spokesman Michael Logue said.

The corps is offering government land for lease for barge-loading sites to help commercial interests begin using the rivers, Logue said.

Dredging began in late December and must end Feb. 15 due to an agreement with the U.S. Fish and Wildlife Service not to disrupt spawning in the river.

The corps only expected to be able to dredge the West Pearl River south of Lock No. 1 to Lake Borgne during that month-and-a-half.

Dredging began in late December and must end Feb. 15 due to an agreement with the U.S. Fish and Wildlife Service not to disrupt spawning in the river.

A combination of Gulf disturbances and drought increased silt in the West Pearl, making it necessary to dredge in 18 spots that had not been planned.

Because of the increased scope of the project, the corps expected to postpone dredging an eight-mile stretch of the Pearl River just south of Bogalusa until next fall.

But heavy rainfall in December and high water helped speed the project, Logue said.

Pine Bluff Sand and Gravel of Pine Bluff, Ark., is doing the work.

The Dredge Butcher, a two-tiered dredging vessel, was able to go as far upstream as Pool's Bluff, where the Pearl River meets the Pearl River Navigational Canal.

Some dredging also was done in the mouth of the canal and where the Bogue Chitto River flows into the canal, Logue said.

The federal government allocated $850,000 for the dredging project. Late last year, corps officials expected to use that money dredging the West Pearl and planned to seek more money for next fall's dredging.

But Logue said Wednesday the corps has about $175,000 left and may not need any more to finish the project.

He said the corps will decide

See DREDGE, next page

Dredge

From B-1

how much more dredging to do based on what commercial users need and where Bogalusa officials decide to construct a barge port.

A meeting with potential commercial users was held in Bogalusa last week, Logue said.

More interest in using the river was shown than in recent months, Logue said.

Gaylord Container Corp. and Gaylord Chemical Corp., both of Bogalusa, expressed interest in using the river to move goods. Other potential users include companies involved with scrap metal, forestry products, sand, gravel and coal, Logue said.

William Scorsier, executive director of the Washington Industrial Development Foundation, said the meeting showed there will be more than enough business to justify keeping the channel open.

#B excl

376

#21 Encl

ROBERT L. LIVINGSTON
1st District, Louisiana

APPROPRIATIONS COMMITTEE
Subcommittee
DEFENSE

PERMANENT SELECT COMMITTEE
ON INTELLIGENCE

WASHINGTON OFFICE:
Room 2410
Rayburn House Office Building
Washington, DC 20515
(202) 225-3015

DISTRICT OFFICE:
111 Veterans Blvd
Suite 700
Metairie, LA 70005
(504) 589-2753

Congress of the United States
House of Representatives
Washington, DC 20515
February 24, 1989

Colonel Francis R. Skidmore
District Engineer
Corps of Engineers
Office of the District Engineer
Vicksburg, Mississippi 39180-0060

Dear Colonel Skidmore:

In October, 1986, I received a petition signed by several hundred of my constituents in St. Tammany Parish, indicating that various sloughs along the Pearl River had silted up and were impassable making the recreational attributes of the West Pearl River totally unusable. I conveyed a copy of their petition along with a summary of their concerns to the Corps and received an interim response reflecting that the Corps would examine their complaints.

Unfortunately, nothing else was done to address their concerns. Two years later, last fall, the Corps announced that they would dredge the West Pearl River, and the dredging began at the end of 1988. A few days before the dredging was to end, Police Juror Gary Singletary, Mayor Janice McQueen of Pearl River, and Mr. Pat Smith of St. Tammany Parish contacted my office to find out how the Corps was going to address the blockage at Pump's Slough and the other recreational boat ramps along the Pearl in St. Tammany Parish.

Rick Legendre, my district aide and I appealed to you and others at the Corps office, but were told that such off channel dredging was unauthorized, unappropriated, and illegal. You even went so far as to tell me that had we specifically requested Congress to authorize this side-dredging, Congress would not likely authorize it, any more than it would authorize the paving of driveways off an interstate driveway.

So far so good. But then, at an on-site public forum afforded the complainants by the Corps, your representative, Louis Logue, told the newspapers that the work wasn't done because Congress had not appropriated the money for it.

Frankly, I am not pleased with the way the Corps has handled this matter. We in my office did not follow up on our initial request, and we should have. But a search of my office files show thus far that the Corps did not get back to me on this subject after their interim reply, and they should have. In addition, last week your office told my office that they have no record of past correspondence or past conversations with local officials about this problem. Moreover, the explanation given by your representative to the newspapers does not at all jibe with what I was told.

On the merits of the problem, it seems that it would have been very easy for the Corps to expend a few hours of extra work by the dredges and handle these very small problems. That they did not do so for legal reasons is one thing, but to tell the press that the reason was simply because Congress didn't appropriate the money is another altogether. Please provide me with a full and complete explanation of this unfortunate situation, together with the complete recommendation of what might be done to remedy the problem that I know you are working on as a result of my previous requests.

Sincerely,

ROBERT L. LIVINGSTON
Member of Congress

RLL:jg

Enclosure

DEPARTMENT OF THE ARMY
VICKSBURG DISTRICT, CORPS OF ENGINEERS
P. O. BOX 60
VICKSBURG, MISSISSIPPI 39180-0060

#23 Encl

REPLY TO ATTENTION OF:

March 1, 1989

Honorable Robert L. Livingston
House of Representatives
Washington, DC 20515

Dear Mr. Livingston:

This letter is in response to our conversation on February 13, 1989, concerning dredging of Pump Slough in St. Tammany Parish.

As we discussed, we are unable to clean out Pump Slough for public recreation for the following reasons:

a. We do not have congressional authority in our West Pearl River Navigation Project to perform either this type of dredging work, or any work in this particular area. Our dredging authority is limited to maintaining navigation within the confines of the West Pearl River.

b. Our Section 404 review, pursuant to the Clean Water Act, for the West Pearl Dredging did not include cleaning out any recreational type harbors, waterways, or tributaries adjacent to the West Pearl River. As a part of our Section 404 review, we limited our operation to an allowable dredging window, October 1 to February 15 each year. Dredging at any other time of the year will not be acceptable for this waterway due to the possible impact on fish spawning and the ringed sawback turtle, which is currently on the endangered species list. With the dredging this year we opened up the waterway into Pool 3. This work was accomplished and was completed on the evening of the last allowable dredging day, February 15, 1989.

c. The Dredge BUTCHER, the dredge we had under contract to do the West Pearl dredging, is physically too large to be placed into Pump Slough. This work will require the use of a very small dredge, designed specifically for boat landing maintenance. Of an estimated 1200 feet of dredging in Pump Slough, approximately 900 feet is located in that area of the slough that will not accommodate our dredge.

d. The local interests would also be precluded from dredging at this time as they would also require a Section 404 permit. We have, however, met with Mr. Gary Singletary, police juror from St. Tammany Parish, and are assisting them in applying for this permit to do the dredging in Pump Slough. We have also given them vendor names for dredge rental. We are aware that they have received estimates that range from $175 per hour with operator to $11,000 per month (minimum) without operator. The Pump Slough work will take 7 to 10 working days (8 hours).

e. One additional constraint which may exist for local dredging is that Pump Slough may be within the scope of the scenic stream regulation currently in effect for the West Pearl River. The local interests need to coordinate with the State of Louisiana to determine if an additional permit is required by this state designation.

If I can be of any further assistance, please call.

Sincerely,

Francis R. Skidmore
Colonel, Corps of Engineers
District Engineer

ROBERT L. LIVINGSTON
1st District, Louisiana

APPROPRIATIONS COMMITTEE
DEFENSE

PERMANENT SELECT COMMITTEE
ON INTELLIGENCE

-24 encl

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Congress of the United States
House of Representatives
Washington, DC 20515
March 7, 1989

Colonel Francis R. Skidmore
District Engineer
Corps of Engineers
Office of the District Engineer
Vicksburg, Mississippi 39180-0060

Dear Colonel Skidmore:

I have received your letter of March 1, 1989, concerning Pump Slough in St. Tammany Parish. While your March 1st letter generally tracks our conversation of February 13th, it does not adequately reply to previous inquiries for information by my Metairie and Washington offices, including our initial letter and inquiries in early January of this year.

Specifically:

a) Detail the actual authorizations that currently exist for the West Pearl River. Please provide authorization titles and specifics;

b) Provide detailed information on any general or administrative authorities or actions the Corps currently can implement to maintain off-channel waterways or tributaries for safety reasons, for access to maintain an authorized project, and/or for commercial use;

c) Provide details on the frequency and use of Pump Slough (since 1984) for safety (search and rescue) reasons, access to maintain the project waterway, and for any commercial purposes;

d) In addition to Pump Slough, briefly describe other off-channel waterways or tributaries along the West Pearl (that are used for recreation, safety, access, or commercial purposes) that require dredging to provide access year round;

e) It is my understanding that the main access problems at Pump Slough occur during low water periods primarily at the 300 foot entrance area of the slough to the West Pearl. Describe the conditions that usually occur in the 300 foot area year round as well as other areas of Pump Slough that actually prohibit passage during any time of the year;

f) Please provide more detailed and separate cost estimates for adequately dredging the 300 foot area near the entrance of Pump Slough and the remaining 900 feet of the slough;

g) My records indicate (and your office has confirmed) that nothing was done to address my first inquiries in 1986 to the Vicksburg District, on behalf of local interests, to dredge silted sloughs, including Pump Slough. Provide details on any local inquiries or requests made to the Vicksburg District regarding Pump Slough or other sloughs since 1985, particularly if this problem was raised during the Corps' public meetings and discussions on West Pearl dredging in 1985, 1986 and thereafter. Provide a chronology of the public involvement on the West Pearl dredging project;

h) Provide examples and details of Corps actions regarding past and recent dredging requests, within the Vicksburg District jurisdiction, for other off-channel waterways or tributaries along project waterways, including the Mississippi River.

A full and complete explanation of these requests as well as my most recent letter of February 24, 1989, is appreciated.

Sincerely,

ROBERT L. LIVINGSTON
Member of Congress

RLL/pc

Enclosures (3)

DEPARTMENT OF THE ARMY
VICKSBURG DISTRICT. CORPS OF ENGINEERS
P O BOX 60
VICKSBURG, MISSISSIPPI 39180-0060

#25 encl

REPLY TO ATTENTION OF:

March 17, 1989

MAR 2[illegible]

Honorable Robert L. Livingston
House of Representatives
Washington, DC 20515

Dear Mr. Livingston:

This is in response to your letter to me dated February 24, 1989, concerning dredging of Pump Slough on the West Pearl River Navigation Project.

With respect to your request of October 1986 for limited spot dredging cost data on the West Pearl River, I offer the following:

a. My staff interpreted the petition received from St. Tammany Parish residents and the letter to you from the St. Tammany Police Jury as referring to dredging of the West Pearl River.

b. Your letter of October 1986 supported limited dredging of the West Pearl River and again was considered to be support for dredging on the West Pearl River.

c. The November 14, 1986, proposed response date was set to coincide with approval and issuance of the regulatory documents that would allow dredging on the West Pearl River.

d. On November 14, 1986, the District announced that the proposed dredging on the West Pearl River had cleared all Section 404 requirements.

e. After our announcement, we failed to follow up on your October 1986 letter advising you that dredging could resume pending funding.

Our miscommunication stems from the fact that Pump Slough, Davis Landing, and Crawford Landing were not specifically identified as being separate channels from the West Pearl River which require separate dredging. Mr. Singletary's letter of 1986, as stated, was interpreted as requesting that the West Pearl River be dredged.

We regret this misinterpretation of the Police Jury's needs and are working closely with them by providing technical assistance to ensure our efforts parallel their needs.

Regarding the newspaper article of February 17, 1989, wherein Mr. Louis Logue was paraphrased to have said that no money was appropriated for dredging the slough, we consider this to be a simple case of unclear reporting. The message that was presented to the public at Pump Slough on February 16, 1989, included the following:

a. The Corps of Engineers does not have authority to dredge Pump Slough.

b. The Corps has no permit to dredge Pump Slough.

c. There was not enough time to accomplish all required authorizations and approvals and then complete the dredging by February 15, 1989, our latest dredging date.

d. If the Corps had the authority, the permit, and the time, the Dredge BUTCHER could not perform the work because it is too large.

Mr. Logue's statement that was taken out of context was in response to Mr. Pat Smith's question as to why the Corps could not use any of the approximately $170,000 remaining of the $850,000 appropriated to dredge the West Pearl. Mr. Logue's response was that none of the $850,000 could be used because none of this money was appropriated to dredge Pump Slough.

Repeatedly, the point was made that authority was the problem, and not the lack of congressional appropriation action. I regret that the newspaper article reflected that Pump Slough was not dredged due to a lack of funds. This is not the case. It was just never included in the original West Pearl River navigation authority.

While not stated in the article, the local citizens were advised by Mr. Logue and Mr. Singletary that action would begin that day on the Police Jury's application for a permit to dredge within 90 days with an appropriately sized small dredge. They were reminded, however, that

Pearl residents making waves over silt-clogged boat launch

TP 2/14/89

By SARA PASQUES and CHARLIE CHAPPLE
St. Tammany bureau

Pearl River residents and officials are angry that a popular West Pearl River launching point called Pump Slough will not be dredged.

Pump Slough, under the Interstate 59 overpass, is so filled with silt that during low water sportsmen must drag their boats 300 to 400 feet through water a few inches deep before they can launch.

When the Army Corps of Engineers began clearing a channel for barge traffic on the West Pearl River in late December, people who launch boats at the slough thought their problem was solved.

"Everybody thought it was part of the project" to dredge the launch, said St. Tammany Parish Police Juror Gary Singletary, who represents the area. "We're finding out that it's not. And a lot of people are upset, especially in Pearl River."

Pearl River Mayor Janice McQueen said local officials have been asking the corps for 18 months to dredge the slough.

The corps is overseeing the dredging project, which will end Wednesday. Agency officials agreed to stop dredging by Feb. 15 so spawning in the river will not be disrupted.

The deadline has local officials and others scrambling to change the corps' plans.

Residents appealed to the Police Jury, which passed a resolution last month asking the corps to dredge the 1,500-foot slough.

Nearly 500 residents have signed a petition being circulated by Pat Smith, a Pearl River resident who owns a camp on the West Pearl River. Many residents have contacted Rep. Bob Livingston, asking him to intervene.

A spokesman for Livingston said the congressman wrote the corps about the slough Jan. 17 and followed up with a phone call last Friday.

But a spokesman for the corps said Monday that the slough cannot be cleared by the Wednesday deadline.

Michael Logue of the corps' district office in Vicksburg, Miss., said the slough is not a federal waterway and the corps has no authority over it.

Dredging the slough would be like paving a private driveway as part of a public road-paving project, he said.

Even if the corps had authority over the slough, Logue said, permits for the present dredging project do not cover the tributary.

In addition, the channel-dredging machine, called a Dredge Butcher, is too large to go up the narrow slough, Logue said.

The channel-clearing project is to resume in October. A dredge will work on an eight-mile stretch of the Pearl River south of Bogalusa.

But that dredge will be too large for Pump Slough as well, Logue said.

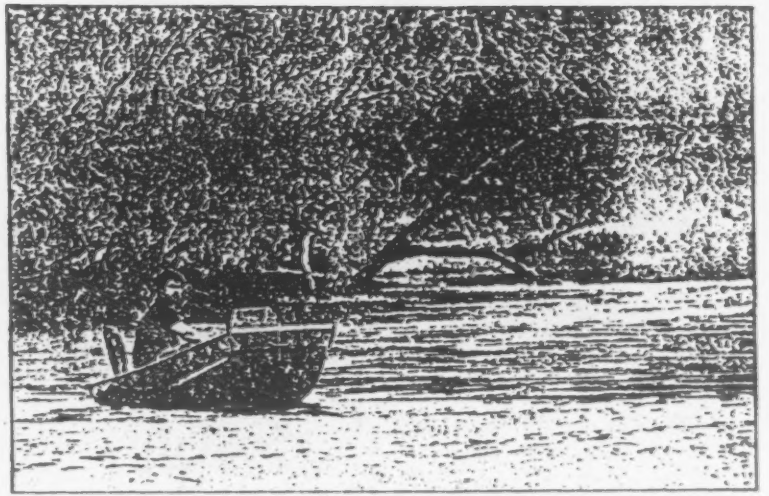
Meanwhile, fishermen like Smith face another summer of problems with Pump Slough.

At this time of year, when the river is high, launching a boat at Pump Slough is easy. But not so in summer.

Ann Blackwell, Smith's sister, watched from the bank Monday as Smith's flat boat bobbed in the brown water of Pump Slough.

From mid-May until about November, boaters have to get out of their boats, remove their gear and haul everything, Smith said.

People with heavy fiberglass boats can't even use the launch during those months, Smith said.



Pat Smith of Pearl River sits over a blockage in Pump Slough, a popular boat launch.

PHOTO BY DENNIS TYNDZIK

#16 ENCL

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#22 end

Inside:
▸Weather
▸Deaths
▸Editorials

ST. TAMMANY

2/25 TP

Police Jury to seek permits to dredge West Pearl

By KRISTIN GILGER
St. Tammany bureau

The St. Tammany Police Jury will apply for permits to dredge three boat landings that have become silted over on the West Pearl River.

Police jurors voted Thursday night to apply for the permits and do the work themselves after the Army Corps of Engineers declined to do it.

The corps recently finished clearing a channel for barge traffic. Area fishermen said they believed the work was to include dredging three popular boat landings — Pump Slough and Davis and Crawford landings. In the spring, boaters must drag their boats 300 to 400 feet through water a few inches deep before they can launch.

But corps officials said they can't dredge the river for recreational purposes without congressional approval.

Corps officials said the parish can do the work, however, with the proper permits. They said they will help the parish obtain the permits and a surplus dredge to do the work.

If everything goes well, the parish could be ready to dredge the landings in 60 to 90 days, said Michael Logue of the corps' district office in Vicksburg, Miss.

The surplus dredge, docked in Vicksburg, must first be offered to other federal agencies, Logue said. If there are no takers, it will be offered to state governments.

Logue said he doesn't think anyone else is interested in the small dredge, and Louisiana probably can get it for St. Tammany. There would be no charge.

"Even if we have to spend money, I think we can justify the cost," Police Juror Gary Singletary told jurors Thursday. The river attracts 600,000 visitors a year, he said, and each visitor spends an average of $30, generating substantial business for the parish. Those numbers would be much higher if the river had more recreational facilities, Singletary said. He asked jurors to support a resolution asking Louisiana's congressional delegation to push for an expanded corps' role in the area.

Specifically, the corps is being asked to add campsites, picnic areas and boat landings.

Jurors voted unanimously in favor of the resolution.

Logue said Friday that the corps would gladly pursue those projects, but he warned that competition for federal money is scarce.

But he agreed that the river is ripe for development. The area's population is growing, and there is more demand for recreation, he said.

"Areas like that are relatively rare," he said. "It has a beautiful swamp, beautiful beaches and clear water."

See JURY, next page

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CONTINUED ...

Jury

From B-1

In other action Thursday night, the Police Jury:

▶ Approved a 26-cent tax on the sale of cigarette papers, commonly used to roll marijuana cigarettes. The tax will help finance recreation in the parish.

▶ Named entertainer Ronnie Kole of Slidell to the St. Tammany Tourist and Convention Commission.

▶ Appointed Harvey Hayden Sr., manager of the Abita airport at Abita Springs, to the 14-member parish Zoning Commission to replace Ike Beggs, who has died.

Thompson

From B-1

time in a Tallahassee, Fla., prison for bank robbery. This record also included a December 1987 attempted-murder charge in New Orleans.

The report was based on a search of crime-computer records available to law enforcement agencies throughout the country.

But Ciko said Friday that the record released last month by the Sheriff's Office belongs to a New Orleans man who is in the state penitentiary at Angola.

Friday's report was based on FBI records keyed to Thompson's fingerprints, Ciko said.

He said Thompson was arrested in October 1969 in Waco, Texas, on a car-theft charge and again two months later in Mineral Wells, Texas, also in an auto-theft case.

In March 1970, he was sent to the Texas Department of Correc-

Duke

From B-1

cluding endorsements by Bush and former President Reagan — into Treen's campaign.

One Republican insider called the condemnation necessary but "absolutely meaningless." The source said, "There's nothing that the party can do for or to David Duke."

Atwater has said repeatedly that the party wants no part of Duke or his racist views. More recently, the GOP has adopted a low-profile approach to Duke, but it felt bound to carry out the "excommunication" Atwater promised on election night, Feb. 18.

Goodman said the 27-member Chairman's Executive Council, comprising top party officers and a sampling of Republican National Committee members, voted unanimously by telephone

METRO NEWS

Toll-taker booked with theft

West Bank bureau

Some commuter dollars may have been lining the pockets of a Mississippi River Bridge toll-taker.

Mississippi River Bridge Authority police arrested Troy Andry, 28, late Thursday on theft charges. He was booked at Central Lockup on charges of pocketing tolls.

Andry stole at least $400 in tolls, said Randy Paissant, MRBA assistant executive director.

Andry was one of the original toll collectors hired by the state Jan. 4, when tolls were instituted on the new bridge. He had worked various shifts.

A spokesman at Central Lockup said Andry also was booked on an outstanding arrest warrant for a New Orleans traffic charge. A $500 bond was set on

In addition to the visual axle count by toll collectors, each axle moving through the toll gate is registered by a treadle. At the end of each work shift, the amount collected in each toll booth must match the number of axles registered by the treadle.

Toll-takers are allowed an error of 75 cents per $1,000 collected.

Mr. Pat Alonze General Sales Mgr. of John Brown Motors congratulates Jay Thompson as Salesman for the month of January.

Jay would like to thank his customers for helping him to achive this honor. If they, or any of their friends or relatives need any help in the future please don't hesitate to call.

Thank you.

JAY CAN BE REACHED AT 529-2277 OR SLIDELL 643-2277

JOHN BROWN

1st Slidell Exit from Twin Span

any dredging would be dependent on the Police Jury's successfully acquiring the Section 404 permit. This meeting also began a series of information exchanges between the Corps and the Police Jury assisting them with their permit.

We are in receipt of your March 7, 1989, letter and will have the answer on March 20, 1989.

Again, we regret the unfortunate miscommunications and trust that this information clears up this subject, and we look forward to working with you on matters of navigation on the West Pearl River. Should you have any additional questions, please let me know.

Sincerely,

Francis R. Skidmore
Colonel, Corps of Engineers
District Engineer

DEPARTMENT OF THE ARMY
VICKSBURG DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60
VICKSBURG, MISSISSIPPI 39180-0060

REPLY TO
ATTENTION OF

#26 ENCL

March 22, 1989

Honorable Robert L. Livingston
House of Representatives
Washington, DC 20515

Dear Mr. Livingston:

I have enclosed three fact sheets which provide the information requested in your letter of March 7, 1989 (enclosure 1). For your convenience, I have restated the pertinent paragraphs of your letter at the beginning of the fact sheet which addresses the particular items of concern.

I trust that this information will meet your needs, and again I regret the misunderstanding that led to improper handling of your 1986 inquiry. If I may be of further assistance on this or other matters within my jurisdiction, please let me know.

Sincerely,

Robert P. Petersen

Robert P. Petersen
Lieutenant Colonel
Corps of Engineers
Acting District Engineer

Enclosure
Fact Sheets
1. Project Authority
2. Access to West Pearl River
3. Pump Slough Dredging

FACT SHEET
PROJECT AUTHORITY

1. Information contained herein is furnished in response to paragraphs a., b., and h. of Congressman Livingston's March 7, 1989, letter. The paragraphs are stated below for ready reference:

"a) Detail the actual authorizations that currently exist for the West Pearl River. Please provide authorization titles and specifics;

"b) Provide detailed information on any general or administrative authorities or actions the Corps currently can implement to maintain off-channel waterways or tributaries for safety reasons, for access to maintain an authorized project, and/or for commercial use;

"h) Provide examples and details of Corps actions regarding past and recent dredging requests within the Vicksburg District jurisdiction, for other off-channel waterways or tributaries along project waterways, including the Mississippi River."

2. The existing project on the West Pearl River was authorized by the August 30, 1935, Rivers and Harbors Act, House Document 408, 75th Congress, 2d session. This legislation authorized a 58-mile channel from the mouth of the West Pearl River to the mouth of Bogalusa Creek at Bogalusa, Louisiana. The authorized channel was to be 7 feet deep at low water with a bottom width of 100 feet in the river sections and 80 feet in the canal section; and with locks 65 by 310 feet clear inside dimensions. The November 7, 1966, Rivers and Harbors Act; House Document 482, 89th Congress, 2d session authorized construction of cutoffs and easement of critical bends at eight locations below Lock 1. with no increase in project dimensions, depth and width.

3. The authorizing documents limit channel maintenance of the West Pearl River to the authorized project dimensions. We have no specific, general, or discretionary authority that would allow us to dredge or otherwise maintain off-channel waterways or tributaries to a navigation project.

4. We receive numerous requests for dredging from local interests when we are performing maintenance dredging on the Red, Ouachita, and Mississippi Rivers. These requests are primarily from port commissions or commercial interests. However, our position on authority is not altered by whether the request comes from a public body or a private business. Specific examples of how we respond to such requests are cited as follows:

a. A Rosedale Harbor Commission request for dredging outside the scope of our authority was denied. However, we agreed to suspend our contract for the dredge temporarily to allow the port authority to negotiate its own agreement with the contractor. This procedure allows the local interest to avoid mobilization costs, and we can normally accommodate such an arrangement unless other maintenance requirements are critical. We have used this procedure to assist the Greenville (MS) Port Commission, Lake Providence (LA) Port Commission, Madison Parish (LA) Port Commission, Vicksburg (MS) Port Commission, and the Mississippi Power and Light Company which has a channel constructed off of Greenville Harbor.

b. On two occasions we have performed dredging for the Vicksburg Port Commission on a reimbursable basis.

c. A past request from the City of Lake Village, Arkansas, to dredge in Lake Chicot along their City front was denied for lack of authority.

5. Our position on all requests for dredging is the same as that taken on Pump Slough, i.e., absent specific congressional authorization, we cannot perform work outside the scope of project maintenance as defined by authorized project dimensions.

FACT SHEET
ACCESS TO WEST PEARL RIVER

1. Information contained herein is furnished in response to paragraphs c., d., and e. of Congressman Livingston's March 7, 1989, letter. The paragraphs are restated below for ready reference:

"c) Provide details on the frequency and use of Pump Slough (since 1984) for safety (search and rescue) reasons, access to maintain the project waterway, and for any commercial purposes;

"d) In addition to Pump Slough, briefly describe other off-channel waterways or tributaries along the West Pearl (that are used for recreation, safety, access, or commercial purposes) that require dredging to provide access year round;

"e) It is my understanding that the main access problems at Pump Slough occur during low water periods primarily at the 300-foot entrance area of the slough to the West Pearl. Describe the conditions that usually occur in the 300-foot area year round as well as other areas of Pump Slough that actually prohibit passage during any time of the year;"

2. The ramp and parking area at Pump Slough were constructed in 1966 by the Louisiana Department of Public Works. A permit for the construction was issued by the Mobile District Corps of Engineers in November 1965. In 1977, the Mobile District issued a permit to the Town of Pearl River to perform maintenance dredging on the approximately 1,700-foot-long access channel. Since there has been no past Federal interest in this work, we have no records indicating frequency of use of the facility by local law enforcement agencies or commercial interests. Corps employees probably use the ramp five or six times a year to launch survey boats. However, this is a matter of convenience in surveying the lower end of the river, as we have ramps at Lock 1. Our ramps are also used by the public to gain access to the river and the canal section of the project.

3. In addition to Pump Slough and the Corps ramps, there are boat ramps at Davis Landing and Crawford Landing. The Davis and Crawford Landing ramps were constructed by Louisiana Wildlife and Fisheries Commission in 1976 and 1978, respectively. Both of these facilities have access channels leading from the ramp to the river, and would probably require periodic maintenance dredging; however, our records do not indicate whether either facility has been maintained since they were constructed. Again, we have no idea of the frequency of use of these facilities or the nature of such use.

4. The siltation at the mouth of Pump Slough is typical of the problem at the mouth of any small channel entering a larger stream. Access problems occur first at the mouth of Pump Slough where an eddy works during certain river stages and causes a build-up of material where the eddy "spills out." The remainder of the channel fills when stages of the West Pearl River are high enough to retard flow in Pump Slough. The slowed velocity in the slough allows the sediment to drop out of suspension and deposit throughout the lower end of the slough.

FACT SHEET
PUMP SLOUGH DREDGING

1. Information contained herein is furnished in response to paragraphs f. and g. of Congressman Livingston's March 9, 1989, letter. The paragraphs are restated below for ready reference:

"f) Please provide more detailed and separate cost estimates for adequately dredging the 300-foot area near the entrance of Pump Slough and the remaining 900 feet of the slough;

"g) My records indicate (and your office has confirmed) that nothing was done to address my first inquiries in 1986 to the Vicksburg District, on behalf of local interests, to dredge silted sloughs, including Pump Slough. Provide details on any local inquiries or requests made to the Vicksburg District regarding Pump Slough or other sloughs since 1985, particularly if this problem was raised during the U.S. Army Corps of Engineers public meetings and discussions on West Pearl dredging in 1985, 1986 and thereafter. Provide a chronology of the public involvement on the West Pearl dredging project;"

2. The Pump Slough channel, as originally excavated by the Louisiana Department of Public Works, had a 10-foot bottom width. The original work, as well as the maintenance proposed by the Town of Pearl River in 1977, was to be performed by dragline. The contract dredge we had in the West Pearl was physically too large to have performed the proposed reestablishment of the 10-foot-bottom-width channel. We have assisted the St. Tammany Police Jury in preparing an application for the necessary permits to allow them to cleanout the channel and have given them the names of companies that could perform the work with a small (6- or 8-inch) dredge. We have also informed the Police Jury that the Vicksburg District has recently placed a 6-inch portable dredge on the list of surplus Government property. They are now trying to obtain that dredge through the Federal Surplus System. It is our understanding that the Police Jury has now estimated that it will cost approximately $20,000 to dredge the entire length of the channel from the boat ramp to the West Pearl River using a small contract dredge.

3. The general public was made aware of our proposal by 30-day Public Notice issued August 20, 1985. The notice was mailed to all persons that had expressed a desire to receive such notices; to local and regional media; to local, State, and Federal agencies; to special interest groups known to have an interest in this project; to residents along the river; and to six businesses near the proposed project who had agreed to distribute the notice. The mailing list included more than 4,000 addresses, and the six businesses were given more than 1,000 extra copies of the notice. Because of the scope of the project and the interest exhibited during the comment period, a special notice extending the comment period for an additional 30 days was issued on September 20, 1985. Four informal public workshops were held in October 1985; one in Bogalusa, Louisiana; two in Slidell, Louisiana; and one in Picayune, Mississippi.

4. The interest in dredging Pump Slough did not surface during the public comment period or at any of the public meetings. In fact, neither the petition circulated by Mr. Singletary nor the resolution adopted by the St. Tammany Police Jury in 1986 specifically mentioned Pump Slough. The language in those documents was taken as a statement of support for the project as we had described it in our public notices, i.e., spot dredging of the West Pearl, up to and including the mouth of the canal near Lock 1.

FACT SHEET

Recreational Access to West Pearl River

Pump Slough

1. On October 22, 1965, the State of Louisiana Department of Public Works, on behalf of the St. Tammany Parish Police Jury, requested a permit to construct a boat ramp, parking lot and access channel at Pump Slough.

2. The work was authorized by a Letter of Permission from the Mobile District dated November 17, 1965.

3. On April 27, 1977, Mobile District issued a Section 10/404 to the Town of Pearl River to restore the 1,700-foot access channel from the ramp to the Pearl River.

4. There is no record of maintenance since that time, even though the 1977 permit could have been construed to permit maintenance dredging for a period of 10 years from the date of the permit; upon 2 weeks advanced written notice to the District Engineer.

5. The 1977 permit file contains all necessary State approvals, i.e., Water Quality Certification and Class B Use Permit (Scenic Streams).

6. Copies of both permit files have been forwarded to the St. Tammany Police Jury to assist them in applying for the currently needed permit to perform the same work.

Davis Landing

1. On May 31, 1974, Mobile District issued a permit to the Louisiana Wildlife and Fisheries Commission to construct a boat ramp and excavate a 900-foot access channel at Davis Landing. The 900-foot channel provided access from the ramp to the West Pearl River and was excavated to 12 feet below ordinary high water.

2. The work was completed in August 1976 by the Louisiana Department of Public Works.

3. There is no record of maintenance dredging having been performed since completion of the project.

Crawford Landing

1. On October 8, 1974, the Mobile District issued a permit to the Louisiana Wildlife and Fisheries Commission to construct a boat ramp and excavate a boat slip and access channel at Crawford Landing.

2. The record contains no indication of when the work was completed. However, the permit was specifically extended to December 31, 1978, so I assume it was completed that year.

3. There is no record of maintenance dredging having been performed since completion of the project.

#27 ENCL

Statement for the Record
Congressman Bob Livingston
April 4, 1989
House Energy and Water Appropriations Subcommittee
FY90 Projects

Mr. Chairman, members of the Subcommittee, thank you for allowing me to present this statement for the record.

The most urgent request to you and your Subcommittee is to provide approximately $1.6 million for the West Bank Hurricane Protection project. At least $1.1 million of this amount is for first year, new construction start funding for the West Bank Hurricane Protection project. I understand accompanying language would be necessary to clarify that this funding is for a new construction start.

The remaining $500,000, or less if Corps estimates prove otherwise, would be to begin a feasibility study in FY1990 for the Cataouatche Protection Levee project for possible inclusion and authorization as part of the West Bank Hurricane Protection project. I have enclosed for the Subcommittee's records a copy of a resolution presented to me just yesterday by the West Jefferson Levee District describing the importance of studying the Lake Cataouatche area.

Mr. Chairman, as you may recall, your Subcommittee and staff were instrumental in providing previous annual funding to accelerate the study phases of the now authorized West Bank Hurricane Protection project. This project will provide critical hurricane flood control protection for tens of thousands of residents. The Administration failed to include first year construction funding in its FY1990 request. However, as testimony given earlier this year before your Subcommittee indicates, funding was not requested simply because a final OMB review of the entire project had not been completed.

This is not the case anymore, Mr. Chairman. On March 15th, the OMB notified Secretary Page in writing that the "Administration supports implementation of the project through the budget process" in accordance with the favorable recommendations already made by the Chief of Engineers and evey other level of the Corps of Engineers.

Mr. Chairman, yet another delay in providing protection for residents in West Jefferson Parish will occur if at least $1.1 million in FY1990 funding for the start up of construction is not provided. Why? Because if an initial construction award is not made by the local sponsor on this project by March 1990, the local sponsor will lose $4.5 million in State dedicated funds. No Federal funds in FY 1990 will make it impossible for the local sponsor to meet the March 1990 deadline for award.

A second important request I would make to this Subcommittee is for additional funding for selected dredging along the West Pearl River.

Last year, your Subcommittee provided $850,000 in FY 1989 funds for the dredging and the re-opening for navigation of the West Pearl River as authorized by the August 30, 1935, Rivers and Harbors Act, House Document 403, 75th Congress, 2nd session.

However, the Vicksburg Corps of Engineers maintains that this particular authorization and other existing authorities do not provide them with any specific, general, or discretionary authority that would allow them to dredge, or otherwise maintain, off-channel waterways or tributaries to the West Pearl River navigation channel.

Therefore, I am requesting your assistance in providing report or bill language that would permit the Corps to perform dredging and related activities to maintain three off-channel waterways from their confluence with the West Pearl River to designated landing areas. The three off-channel landing areas are commonly referred to as Pump Slough Landing, Davis Landing, and Crawford Landing.

Corps of Engineers funding estimates currently only exist for Pump Slough. The preliminary estimate is $45,000 for Pump Slough alone. Funding for all three off-channel areas is needed in addition to the $191,000 already requested in FY1990 for Pearl River operation and maintenance.

Dredging at these three sites is important, particularly at Pump Slough, for a number of reasons.

A primary use for these three tributaries is recreation. Pump Slough, Davis and Crawford landings are primary access routes for the thousands of citizens and residents from the local area, the greater New Orleans area, and Mississippi who visit the nearby Bogue Chitto National Wildlife Refuge. Corps of Engineers figures for 1988 show that these three landings and the locks at the Pearl River Navigation Canal accomodated over 600,000 recreational users! These users contributed (according to the Corps) approximately $30 per person to the local economy and region just northeast of New Orleans. This economic impact is critical to an area and a state whose overall economy has been severely depressed for some years.

More recent information also indicates that these three tributaries are also important for safety and commercial reasons.

The Corps of Engineers uses Pump Slough for occassional access to the main navigation channel of the West Pearl River. In addition, local police authorities have told my office that Pump Slough, and its access to the West Pearl, is important to their search and rescue and law enforcement efforts in the region. There are also a number of year round residents who live on permitted boat houses along all three thributaries. Clear access along these tributaries is vitally important to the livelihood and safety of many of these residents.

Mr. Chairman, members of the Subcommittee, I hope you and your staff can work with my office to find a solution to this very important issue.

The third, and very important request, is to ask your assistance in continuing to provide funding for the many critical coastal erosion initiatives under your Subcommittee's jurisdiction.

I particularly ask your continued support for funding of the Caernarvon, Davis Pond and Bonnet Carre Spillway freshwater diversion projects. Though the Administration has not requested FY 1990 funding for the Bonnet Carre Spillway diversion project, I hope the Subcommittee will provide adequate funding to keep this project on or near schedule.

I would also ask this Subcommittee and staff to carefully review the testimony of State officials and the Governor's office regarding funding for coastal erosion initiatives, including the possibility of annual funding for Section 1155 of Public Law 99-662.

In closing Mr. Chairman, I would only ask your Subcommittee and your diligent and expert staff to continue to monitor the ever growing and changing relationship between the local and state authorities and the Federal government in developing and preserving our water and wildlife resources. I believe a new cost sharing partnership with the Federal government has been recognized by most state and local authorities. But we must monitor it to ensure that it is a more equal partnership for local and state authorities in terms of developing project parameters and costs, particularly the engineering and design costs that seem to be taking a larger and larger bite out of the budgets of many projects.

Mr. Chairman, members of the Subcommittee, the leadership and support for Louisiana interests provided by you, your excellent staff, and my great colleague from Louisiana, Lindy Boggs, has been un-paralleled over the years. Thank you for everything your Subcommittee has done and will continue to do.

#29 ENCL

IB

101ST CONGRESS
1ST SESSION

H. R. 2696

IN THE HOUSE OF REPRESENTATIVES

JULY 27, 1989

Ordered to be printed with the amendments of the Senate numbered

AN ACT

Making appropriations for energy and water development for the fiscal year ending September 30, 1990, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the fiscal year ending September 30, 1990, for energy and water development, and for other purposes, namely:

TITLE I

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

The following appropriations shall be expended under the direction of the Secretary of the Army and the supervi-

~~adding at the end thereof the following new sentence: "Notwithstanding section 215 of the Flood Control Act of 1968 (42 U.S.C. 1962d-5a), if, before the date of the enactment of this Act, non-Federal interests complete construction and repair of the Cherry Street bridge, the Secretary shall credit toward the non-Federal share of the cost of construction of the Walnut Street bridge an amount equal to the Federal share of the cost incurred for construction and repair of the Cherry Street bridge.".~~

~~(34) SEC. 108. Cost sharing requirements for the study of the Lake Erie-Ohio River Canal, Ohio and Pennsylvania, authorized by resolution of the Committee on Public Works and Transportation on October 1, 1986, shall be in accordance with section 105(a)(2) of the Water Resources Development Act of 1986.~~

SEC. (35) ~~109~~ *107.* The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to perform maintenance dredging and related activities to maintain Pump Slough from its confluence with the West Pearl River to the boat ramps in the vicinity of Interstate 59 and Crawford and Davis landings.

SEC. (36) ~~110~~ *108.* The project for mitigation of fish and wildlife losses at the Canaveral Harbor West Basin and Approach Channel project, Florida, authorized by section 601(a) of the Water Resources Development Act of 1986

101ST CONGRESS
1st Session

HOUSE OF REPRESENTATIVES

REPORT
101-96

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS BILL, 1990

JUNE 20, 1989.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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Mr. BEVILL, from the Committee on Appropriations, submitted the following

REPORT

[To accompany H.R. 2696]

The Committee on Appropriations submits the following report in explanation of the accompanying bill making appropriations for energy and water development for the fiscal year ending September 30, 1990, and for other purposes.

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CORPS OF ENGINEERS - OPERATION AND MAINTENANCE

TYPE OF PROJECT	PROJECT TITLE	BUDGET ESTIMATE	HOUSE ALLOWANCE
(N)	MISS RVR BTWN MISSOURI RVR & MINNEAPOLIS, IL, MN (LRVD	9,623,000	9,623,000
	NORTH BRANCH CHICAGO RIVER, IL	---	180,000
(FC)	REND LAKE, IL	3,206,000	4,098,000
(N)	WAUKEGAN HARBOR, IL	1,775,000	1,775,000
	INDIANA		
(FC)	BROOKVILLE LAKE, IN	893,000	898,000
(N)	BURNS WATERWAY HARBOR, IN	13,000	13,000
(N)	BURNS WATERWAY SMALL BOAT HARBOR, IN	188,000	188,000
(FC)	CAGLES MILL LAKE, IN	810,000	814,000
(FC)	CECIL M HARDEN LAKE, IN	888,000	888,000
(FC)	HUNTINGTON LAKE, IN	524,000	527,000
(N)	INDIANA HARBOR, IN	600,000	600,000
(N)	MICHIGAN CITY HARBOR, IN	192,000	1,187,000
(FC)	MISSISSINEWA LAKE, IN	522,000	525,000
(FC)	MONROE LAKE, IN	870,000	880,000
(FC)	PATOKA LAKE, IN	470,000	473,000
(FC)	SALAMONIE LAKE, IN	444,000	454,000
	IOWA		
(FC)	CORALVILLE LAKE, IA	2,409,000	2,862,000
(FC)	MISSOURI RIVER - KENSLERS BEND, NE TO SIOUX CITY, IA	50,000	50,000
(N)	MISSOURI RIVER - SIOUX CITY TO MOUTH, IA, NE, KS & MO	8,878,000	8,878,000
(FC)	RATHBUN LAKE, IA	1,317,000	1,364,000
(FC)	RED ROCK DAM - LAKE RED ROCK, IA	2,788,000	2,871,000
(FC)	SAYLORVILLE LAKE, IA	3,718,000	4,170,000
	SIOUX CITY, IA	---	8,000
	KANSAS		
(FC)	CLINTON LAKE, KS	1,312,000	1,330,000
(FC)	COUNCIL GROVE LAKE, KS	710,000	873,000
(FC)	EL DORADO LAKE, KS	866,000	866,000
(FC)	ELK CITY LAKE, KS	875,000	875,000
(FC)	FALL RIVER LAKE, KS	807,000	982,000
(FC)	HILLSDALE LAKE, KS	809,000	809,000
(FC)	JOHN REDMOND DAM AND RESERVOIR, KS	1,332,000	1,409,000
(FC)	KANOPOLIS LAKE, KS	2,048,000	2,104,000
(FC)	MARION LAKE, KS	723,000	811,000
(FC)	MELVERN LAKE, KS	1,191,000	1,334,000
(FC)	MILFORD LAKE, KS	2,107,000	2,263,000
(FC)	PEARSON - SKUBITZ BIG HILL LAKE, KS	974,000	1,024,000
(FC)	PERRY LAKE, KS	1,677,000	1,837,000
(FC)	POMONA LAKE, KS	1,061,000	1,198,000
(FC)	TORONTO LAKE, KS	318,000	318,000
(FC)	TUTTLE CREEK LAKE, KS	1,620,000	1,684,000
(FC)	WILSON LAKE, KS	1,038,000	1,188,000
	KENTUCKY		
(MP)	BARKLEY DAM AND LAKE BARKLEY, KY	8,824,000	9,478,000
(FC)	BARREN RIVER LAKE, KY	1,003,000	1,204,000
(N)	BIG SANDY HARBOR, KY	1,000,000	1,000,000
(FC)	BUCKHORN LAKE, KY	683,000	739,000
(FC)	CARR FORK LAKE, KY	914,000	981,000
(FC)	CAVE RUN LAKE, KY	801,000	871,000
(FC)	DEWEY LAKE, KY	967,000	1,012,000
(FC)	FISHTRAP LAKE, KY	938,000	988,000
(FC)	GRAYSON LAKE, KY	686,000	746,000
(N)	GREEN & BARREN RIVERS, KY	1,137,000	1,137,000
(FC)	GREEN RIVER LAKE, KY	1,023,000	1,186,000
(N)	HICKMAN HARBOR, KY	497,000	497,000
(N)	KENTUCKY RIVER, KY	1,297,000	1,297,000
(MP)	LAUREL RIVER LAKE, KY	718,000	734,000
(N)	LICKING RIVER OPEN CHANNEL WORK, KY	13,000	13,000
(FC)	MARTINS FORK LAKE, KY	818,000	818,000
(FC)	MIDDLESBORO CUMBERLAND RIVER BASIN, KY	37,000	37,000
(FC)	NOLIN LAKE, KY	1,001,000	1,147,000
(N)	OHIO RIVER LOCKS AND DAMS, KY, IL, IN, OH, PA & WV	47,078,000	47,078,000
(N)	OHIO RIVER OPEN CHANNEL WORK, KY, IL, IN, OH, PA & WV	4,318,000	4,318,000
(FC)	PAINTSVILLE LAKE, KY	736,000	736,000
(FC)	ROUGH RIVER LAKE, KY	1,006,000	1,118,000
(FC)	TAYLORSVILLE LAKE, KY	873,000	883,000
(MP)	WOLF CREEK DAM - LAKE CUMBERLAND, KY	3,309,000	3,381,000
(FC)	YATESVILLE LAKE, KY	300,000	300,000
	LOUISIANA		
(N)	ATCHAFALAYA RIVER & BAYOUS CHENE, BOEUF & BLACK, LA	4,320,000	4,320,000
(N)	BARATARIA BAY WATERWAY, LA	948,000	948,000
(FC)	BAYOU BODCAU RESERVOIR, LA	341,000	341,000
(N)	BAYOU LAFOURCHE AND LAFOURCHE - JUMP WATERWAY, LA	370,000	370,000
(FC)	BAYOU PIERRE, LA	38,000	38,000
(N)	BAYOU TECHE, LA	480,000	480,000
(FC)	CADDO LAKE, LA	126,000	126,000
(N)	CALCASIEU RIVER & PASS, LA	4,450,000	4,450,000
(N)	FRESHWATER BAYOU, LA	760,000	760,000
(N)	GULF INTRACOASTAL WATERWAY, LA	11,550,000	11,576,000
(N)	HOUMA NAVIGATION CHANNEL, LA	2,280,000	2,280,000
(N)	LAKE PROVIDENCE HARBOR, LA	309,000	309,000
(N)	MADISON PARISH PORT, LA	63,000	63,000
(N)	MERMENTAU RIVER, LA	1,380,000	1,480,000
(N)	MISSISSIPPI RIVER, OUTLETS AT VENICE, LA	3,090,000	3,090,000
(N)	MISSISSIPPI RIVER - BATON ROUGE TO GULF OF MEXICO, LA	44,650,000	44,650,000
(N)	MISSISSIPPI RIVER - GULF OUTLET, LA	8,100,000	8,100,000
(N)	PEARL RIVER, MS	191,000	596,000
(N)	RED RIVER WATERWAY - MISSISSIPPI RIVER TO SHREVEPORT	8,112,000	8,112,000
	REMOVAL OF AQUATIC GROWTH, LA	1,600,000	1,600,000
(FC)	WALLACE LAKE, LA	139,000	139,000

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Beaver Lake (Major Rehabilitation), Arkansas.—The Corps of Engineers has advised the Committee that a review of contractor proposals to build the concrete seepage cutoff wall indicates that the FY 1990 budget request of $6,560,000 will be insufficient to keep the project on schedule. Accordingly, the Committee has provided an additional $2,000,000 to keep this important project on schedule.

Oceanside Experimental Sand Bypass System, California.—The Committee has provided $2,600,000 for the Oceanside, California, sand bypass system. These funds will permit operation of Phase I and construction of Phase II of the bypass system.

Michigan City Harbor, Indiana.—The Committee directs that the Secretary of the Army, acting through the Chief of Engineers, ensure that there are adequate depths in Michigan City Harbor and its entrance for vessels commonly using the channels. If necessary, the Corps of Engineers shall dredge the harbor using available funds.

Ashtabula Harbor, Ohio.—The Committee has provided an additional $300,000 to address the critical shoaling problem in the Ashtabula River upstream of the 5th Street Bridge. This portion of the project channel has not been dredged since the 1970's and is currently hazardous to navigation. The Committee recognizes that this work, which involves dredging to a depth of 6 feet below low water datum, is an interim measure to provide the minimum channel dimensions necessary for the passage of vessels until a permanent solution for dredging and disposal of toxic sediments can be developed.

Appomattox River, Virginia.—The Committee has provided $1,000,000 for maintenance dredging of the Appomattox River project.

Gulf Intracoastal Waterway (Algiers Lock), Louisiana.—The Committee directs the Secretary of the Army to operate the Algiers Lock so as to optimize the flow of freshwater into the Barataria Basin within the constraints imposed by river stages and navigation traffic. An additional $25,000 has been provided for this purpose.

Mermentau River, Louisiana.—The Committee has provided an additional $100,000 for operation of the Catfish Point and Schooner Bayou water control structures 24 hours per day in order to provide additional freshwater flows into the Grand and White Lakes area.

Pearl River, Louisiana.—The bill includes a total of $596,000 to continue dredging of the navigation channel on the Pearl River that was begun in FY 1989. Additional funds are provided to perform maintenance dredging of the West Pearl River from the mouth to the proposed Bogalusa port site in the vicinity of river mile 52.1. In addition, the Secretary of the Army is directed to perform dredging and related activities to maintain Pump Slough from the West Pearl River up to the boat ramps in the vicinity of the Interstate 59 bridge and Crawford and Davis Landings.

Channel to Red Bluff, Texas.—The Committee has provided $250,000 for the Corps of Engineers to perform maintenance dredging of the Red Bluff Channel. This channel has not been maintained since the 1960's and has insufficient depths for the barge traffic utilizing the project.

Calendar No. 168

101ST CONGRESS
1st Session

SENATE

REPORT
101-83

ENERGY AND WATER DEVELOPMENT APPROPRIATION BILL, 1990

JULY 25 (legislative day JANUARY 3), 1989.—Ordered to be printed

Mr. JOHNSTON, from the Committee on Appropriations, submitted the following

REPORT

[To accompany H.R. 2696]

The Committee on Appropriations, to which was referred the bill (H.R. 2696) making appropriations for energy and water development for the fiscal year ending September 30, 1990, and for other purposes, reports the same to the Senate with various amendments and presents herewith information relative to the changes recommended:

AMOUNT IN NEW BUDGET (OBLIGATIONAL) AUTHORITY, FISCAL YEAR 1990

Amount of bill as passed by the House	$18,543,010,000
Budget estimates considered by House	18,378,373,000
Budget estimates considered by Senate	18,378,373,000
Amount of bill as reported to the Senate	18,432,972,000
The bill as reported to the Senate—	
Over the budget estimate, 1990	+54,599,000
Under the House-passed bill	−110,038,000

19-737 ss

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OPERATION AND MAINTENANCE, GENERAL

Appropriations, 1989	$1,370,714,000
Budget estimate, 1990	1,282,622,000
House allowance	1,382,081,000
Committee recommendation	1,396,104,000

REVENUES APPLIED

Appropriations, 1989	
Budget estimate, 1990	
House allowance	
Committee recommendation	$40,000,000

NET APPROPRIATION

Appropriations, 1989	$1,370,714,000
Budget estimate, 1990	1,282,622,000
House allowance	1,382,081,000
Committee recommendation	1,356,104,000

An appropriation of $1,396,104,000 is recommended.

The administration's fiscal year 1990 budget request for operation and maintenance activities of the Corps of Engineers proposed reductions totaling $84,000,000 resulting in the closure of over 600 recreation sites and the elimination of maintenance dredging of harbors with less than 25,000 tons of commerce. The 25,000 ton limitation affected 74 projects nationwide in 1990 and had the potential to impact over 500 additional projects in future years.

The Committee received communications from many Members of Congress, and a large number of State and local interests requesting restoration of the reductions. Further, the Assistant Secretary of the Army, after realizing the fire storm of opposition to the proposal, agreed to review the criteria and explore ways to achieve the funding reductions while staying within the President's funding request for O&M activities. Unfortunately, the outcome resulted in a situation where neither the Corps nor the Congress could know with any certainty what activities would be accomplished in 1990. More importantly, the Secretary's proposal would require the deferral of other operation and maintenance work into future years. If allowed to go forward in this way, the affect of shrinking budgetary resources and the increasing number of projects entering the O&M program would only make a bad situation worse in fiscal year 1991.

The recommendation set forth herein restores the $84,000,000 reduction proposed by the administration. However, in order to offset a portion to this increase, the Committee has included language in the bill to expand the authority of the Corps of Engineers to collect fees at recreation sites nationwide and to make those receipts available in fiscal year 1990.

The Committee fully recognizes the budget crises, yet believes that it is essential to provide adequate attention to operation and maintenance requirements in order to protect the large Federal investment. It should be pointed out that OMB has reduced this area by $275,000,000 over the past 3 years below the amount needed to adequately address program needs. Meanwhile, the Corps has been

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PROJECT TITLE	BUDGET ESTIMATE	SENATE ALLOWANCE
MISSISSIPPI RIVER, OUTLETS AT VENICE, LA.	3,090,000	3,090,000
MISSISSIPPI RIVER - BATON ROUGE TO GULF OF MEXICO, LA.	44,650,000	44,650,000
MISSISSIPPI RIVER - GULF OUTLET, LA.	6,100,000	6,100,000
PEARL RIVER, MS.	191,000	596,000
RED RIVER WATERWAY - MISSISSIPPI RIVER TO SHREVEPORT,.	5,112,000	5,112,000
REMOVAL OF AQUATIC GROWTH, LA.	1,500,000	1,500,000
WALLACE LAKE, LA.	139,000	139,000
MAINE		
KENNEBEC RIVER, ME.	748,000	748,000
WELLS HARBOR, ME.	---	1,137,000
MARYLAND		
BALTIMORE HARBOR & CHANNELS, MD & VA.	4,399,000	4,399,000
BALTIMORE HARBOR (PREV. OF OBSTRUCTIVE DEPOSITS), MD..	415,000	415,000
BALTIMORE HARBOR (DRIFT REMOVAL), MD.	287,000	287,000
BALTIMORE HARBOR & CHANNELS 50 FT, MD.	700,000	700,000
CRISFIELD HARBOR, MD.	---	600,000
CUMBERLAND, MD AND RIDGELEY, WV.	72,000	72,000
FISHING BAY, MD.	---	464,000
FISHING CREEK, MD.	---	450,000
HONGA RIVER AND TAR BAY, MD.	---	850,000
JENNINGS RANDOLPH LAKE, MD & WV.	1,243,000	1,299,000
MUDDY HOOK AND TYLER COVES, MD.	---	500,000
MANTICOKE RIVER NORTHWEST FORK, MD.	650,000	650,000
NEALE SOUND, MD.	---	505,000
OCEAN CITY HARBOR & INLET & SINEPUXENT BAY, MD.	426,000	426,000
POCOMOKE RIVER, MD.	600,000	600,000
WICOMICO RIVER, MD.	1,000,000	1,000,000
MASSACHUSETTS		
BARRE FALLS DAM, MA.	574,000	574,000
BIRCH HILL DAM, MA.	493,000	493,000
BUFFUMVILLE LAKE, MA.	260,000	260,000
CAPE COD CANAL, MA.	5,302,000	5,302,000
CHARLES RIVER NATURAL VALLEY STORAGE AREA, MA.	150,000	150,000
CONANT BROOK DAM, MA.	143,000	143,000
EAST BRIMFIELD LAKE, MA.	433,000	433,000
HODGES VILLAGE DAM, MA.	250,000	250,000
KNIGHTVILLE DAM, MA.	394,000	394,000
LITTLEVILLE LAKE, MA.	441,000	441,000
NEW BEDFORD FAIRHAVEN ACUSHNET HURRICANE BARRIER, MA..	273,000	273,000
TULLY LAKE, MA.	448,000	448,000
WEST HILL DAM, MA.	276,000	276,000
WESTVILLE LAKE, MA.	287,000	287,000
MICHIGAN		
ARCADIA HARBOR, MI.	---	83,000
CHANNELS IN LAKE ST. CLAIR, MI.	138,000	138,000
CHARLEVOIX HARBOR, MI.	24,000	24,000
DETROIT RIVER, MI.	3,835,000	3,835,000
FRANKFORT HARBOR, MI.	197,000	197,000
GRAND HAVEN HARBOR, MI.	656,000	656,000
HARBOR BEACH HARBOR,MI.	2,276,000	2,276,000
HOLLAND HARBOR, MI.	2,494,000	2,494,000
INLAND ROUTE, MI.	11,000	11,000
KEWEENAW WATERWAY, MI.	3,048,000	3,048,000
LELAND HARBOR, MI.	---	109,000
LEXINGTON HARBOR, MI.	38,000	38,000
LITTLE LAKE HARBOR, MI.	---	143,000
MANISTIQUE HARBOR, MI.	---	406,000
MENOMINEE HARBOR, MI & WI.	45,000	45,000
MONROE HARBOR, MI.	1,029,000	1,029,000
MUSKEGON HARBOR, MI.	201,000	201,000
ONTONAGON HARBOR, MI.	779,000	779,000
PENTWATER HARBOR, MI.	---	126,000
PORT SANILAC HARBOR, MI.	33,000	33,000
PRESQUE ISLE HARBOR, MI.	89,000	89,000
ROUGE RIVER, MI.	123,000	123,000

#33 ENCL

Public Law 101-101
101st Congress

An Act

Making appropriations for energy and water development for the fiscal year ending September 30, 1990, and for other purposes.

Sept. 29, 1989
[H.R. 2696]

Energy and Water Development Appropriations Act, 1990.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the following sums are appropriated, out of any money in the Treasury not otherwise appropriated, for the fiscal year ending September 30, 1990, for energy and water development, and for other purposes, namely:

TITLE I

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

The following appropriations shall be expended under the direction of the Secretary of the Army and the supervision of the Chief of Engineers for authorized civil functions of the Department of the Army pertaining to rivers and harbors, flood control, beach erosion, and related purposes.

GENERAL INVESTIGATIONS

For expenses necessary for the collection and study of basic information pertaining to river and harbor, flood control, shore protection, and related projects, restudy of authorized projects, miscellaneous investigations, and when authorized by laws, surveys and detailed studies and plans and specifications of projects prior to construction, $131,086,000, to remain available until expended: *Provided,* That with funds herein appropriated the Secretary of the Army, acting through the Chief of Engineers, is directed to undertake the following items under General Investigations in fiscal year 1990 in the amounts specified:

Rillito River, Arizona, $350,000;
Antelope Creek, Lincoln, Nebraska, $100,000;
Elm Creek, Nebraska, $75,000;
Jeffersonville, Indiana, $125,000;
Red River Waterway, Shreveport, Louisiana, to Dangerfield, Texas, $750,000;
Sainte Genevieve, Missouri, $50,000;
Missouri River Fish and Wildlife Mitigation, Iowa, Nebraska, Kansas, and Missouri, $300,000;
Lake George, Hobart, Indiana, $100,000:

Provided further, That not to exceed $25,500,000 shall be available for obligation for research and development activities: *Provided further,* That $50,000 of the funds herein appropriated shall be used by the Secretary of the Army, acting through the Chief of Engineers,

Sec. 108. The Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to perform maintenance dredging and related activities to maintain Pump Slough from its confluence with the West Pearl River to the boat ramps in the vicinity of Interstate 59 and Crawford and Davis landings.

Sec. 109. The project for mitigation of fish and wildlife losses at the Canaveral Harbor West Basin and Approach Channel project, Florida, authorized by section 601(a) of the Water Resources Development Act of 1986 under the heading "PORT CANAVERAL HARBOR, FLORIDA" (100 Stat. 4140), is modified to authorize the Secretary to construct that part of the project consisting of reshaping of four spoil islands located in the Banana River, installation of culverts along the existing levee of the south mosquito control impoundment of Merritt Island, and rehabilitation of the existing pump station located at the southern tip of the south mosquito control impoundment, at a total cost of $838,000, with an estimated first Federal cost of $825,000 and an estimated non-Federal cost of $13,000.

Sec. 110. The undesignated paragraph of the Water Resources Development Act of 1986 (Public Law 99-662) under the heading "Roanoke River Upper Basin, Virginia" (100 Stat. 4126) is amended by striking out "$21,000,000" and all that follows in that paragraph and inserting in lieu thereof "$29,000,000, with an estimated first Federal cost of $17,700,000 and an estimated first non-Federal cost of $11,300,000, October 1988 price levels.".

Sec. 111. The project for navigation, Bonneville Lock and Dam, Oregon and Washington, authorized by the Supplemental Appropriations Act of 1985 (Public Law 99-88), the Water Resources Development Act of 1986 (Public Law 99-662), and the Supplemental Appropriations Act of 1989 (Public Law 101-45), is modified to authorize the Secretary of the Army to make available and deliver to the following Oregon and Washington ports: Port of The Dalles, Oregon; Port of Hood River, Oregon; Port of Cascade Locks, Oregon; Port of Klickitat, Washington; and Port of Skamania, Washington, excavated material surplus to the needs of the project as determined and conditioned by the Secretary of the Army without cost to the ports for such material.

Contracts.

The Secretary, or his designee, shall not make such excavated material available until each port has entered into a written agreement: (1) to provide disposal sites at no cost to the government or its agents or its contractors; (2) to provide without charge or fee all disposal site work necessary for placement of the excavated materials as it becomes available for disposal; (3) to provide all disposal site work during disposal of the excavated material such as spreading, compacting and protection of in-water fills but not including offloading from either truck or barge; (4) obtain all required State and Federal permits; and (5) to hold and save harmless the government from all damages, contractual or otherwise from the ports, but not from third-party claims.

Actions taken pursuant to this modification shall not affect the environmental studies and approvals which have been completed for the project.

Sec. 112. Section 4(t)(3) of the Water Resources Development Act of 1988 (102 Stat. 4021-4022) is amended by adding at the end of subparagraph (3)(E) the following new subparagraph:

"(F) Upon transfer of OMR&R responsibility to the city in accordance with the provisions of this subsection, the Sec-

ROBERT L. LIVINGSTON
1st District, Louisiana

APPROPRIATIONS COMMITTEE
SUBCOMMITTEE
DEFENSE

PERMANENT SELECT COMMITTEE
ON INTELLIGENCE

#35 ENCL

WASHINGTON OFFICE
Room 2412
Rayburn House Office Building
Washington, DC 20515
(202) 225-3015

DISTRICT OFFICE
111 Veterans Blvd
Suite 100
Metairie, LA 70005
(504) 589-2753

Congress of the United States
House of Representatives

Washington, DC 20515
October 19, 1989

Mr. Robert W. Page
Assistant Secretary of the Army
for Civil Works
The Pentagon
Washington, D.C. 20310

Dear Bob:

On September 29 the President signed into public law, H.R. 2696, the Fiscal Year 1990 Energy and Water Development Appropriation Bill (P.L.101-101).

Since that time, local Corps district offices have received initial allocations for Fiscal Year 1990 funding for many projects.

However, to date, despite numerous calls by me personally and by my office, this Administration will not allow the Vicksburg District Engineer to officially proceed with a Congressionally authorized project for dredging Pump Slough and other tributaries of the Pearl River between Louisiana and Mississippi. This Congressional authorization was provided in identical bill language by both the House and the Senate. More importantly, additional funding above the budget was provided specifically for this dredging.

I and other members of the Louisiana Congressional delegation took the action we did in this appropriations bill because the Corps of Engineers has maintained since the beginning of this year that the West Pearl River project (as authorized by the August 30, 1935, Rivers and Harbors Act, H.Doc. 403, 75th Congress, 2nd Session) and other existing authorizations did not provide them with specific, general, or discretionary authority that would allow them to maintain or dredge Pump Slough and two other tributaries of the West Pearl.

Pump Slough and these other two tributaries are critical for recreational access to the West Pearl River and surrounding Federal and state wildlife refugees for nearly 600,000 users a year. These tributaries are used by the Corps for occasional access to the authorized navigation channel of the West Pearl. More importantly, local police authorities use these tributaries as their main access routes to the West Pearl and surrounding Federal and state refugees for search and rescue and drug and law enforcement efforts in the region.

I request your immediate approval of this statutorily approved project. Your prompt reply is appreciated.

Sincerely,

ROBERT L. LIVINGSTON
Member of Congress

RLL/pc

ROBERT L. LIVINGSTON
1st District, Louisiana

APPROPRIATIONS COMMITTEE
SUBCOMMITTEE
DEFENSE

PERMANENT SELECT COMMITTEE
ON INTELLIGENCE

WASHINGTON OFFICE
Room 2112
Rayburn House Office Building
Washington, DC 20515
(202) 225-3015

DISTRICT OFFICE
111 Veterans Blvd
Suite 1100
Metairie, LA 70005
(504) 589-2753

Congress of the United States
House of Representatives

Washington, DC 20515
October 19, 1989

Honorable Richard Darman
Director
Office Of Management and Budget
256 Old Executive Office Bldg.
Washington, D.C. 20503

Dear Mr. Darman:

On September 29 the President signed into public law, H.R. 2696, the Fiscal Year 1990 Energy and Water Development Appropriation Bill (P.L.101-101).

Since that time, local Corps district offices have received initial allocations for Fiscal Year 1990 funding for many projects.

However, to date, despite numerous calls by me personally and by my office, this Administration will not allow the Vicksburg District Engineer to officially proceed with a Congressionally authorized project for dredging Pump Slough and other tributaries of the Pearl River between Louisiana and Mississippi. This Congressional authorization was provided in identical bill language by both the House and the Senate. More importantly, additional funding above the budget was provided specifically for this dredging.

I and other members of the Louisiana Congressional delegation took the action we did in this appropriations bill because the Corps of Engineers has maintained since the beginning of this year that the West Pearl River project (as authorized by the August 30, 1935, Rivers and Harbors Act, H.Doc. 403, 75th Congress, 2nd Session) and other existing authorizations did not provide them with specific, general, or discretionary authority that would allow them to maintain or dredge Pump Slough and two other tributaries of the West Pearl.

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I request your immediate approval of this statutorily approved project. Your prompt reply is appreciated.

Sincerely,

ROBERT L. LIVINGSTON
Member of Congress

RLL/pc

#36 ENCL

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

NOV 26 1989

NOV 30 1989

Honorable Robert Livingston
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman Livingston:

This responds to your letter of October 19th regarding Army Corps of Engineers funding for the dredging of the Pump Slough of the West Pearl River, Mississippi and Louisiana.

While carry over funds from FY 1989 were allocated early in this fiscal year, the allocations to individual projects for which new funds were appropriated in the FY 1990 Energy and Water Development Act have just been released to the Army Corps of Engineers field organizations.

We have allocated funds for the newly authorized segment of the Pump Slough project in which you expressed interest. However, expenditure of the funds for this project are conditioned upon the Assistant Secretary of the Army for Civil Works, Robert Page, finding that the project is in compliance with the National Environmental Policy Act of 1986 and the non-Federal cost sharing requirements of the Water Resources Development Act of 1986.

Army has directed the Corps to prepare a brief report on the separable element examining these issues.

I have been given every assurance that Mr. Page will keep your and my office informed on the progress of this study, and we will give your views our full consideration when Army makes its recommendation to us.

Thank you for informing us of your interest in this project.

Sincerely,

Robert E. Grady
Associate Director
for Natural Resources,
Energy and Science

#38 ENL

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

05 DEC 1989

Honorable Robert L. Livingston
House of Representatives
Washington, D. C. 20515

Dear Congressman Livingston:

Thank you for your letter of October 19, 1989, regarding the dredging of Pump Slough of the West Pearl River. Your concerns about this dredging are understood, as are the legislative actions you have championed in order to authorize and direct the work. However, since Pump Slough was not a part of the currently authorized Federal project to maintain the channel in the West Pearl River, the requirements to determine a proper scope of work have never been analyzed.

As you can appreciate, we must proceed responsibly and address environmental concerns associated with this dredging work. Consequently, the Army Corps of Engineers has been asked to perform an analysis of environmental and other requirements, including applicability of the cost sharing provisions in Public Law 99-662, and to promptly furnish a letter report in order that a timely decision may be made on the most effective way to proceed.

I will be back in touch as soon as the Corps report has been received and reviewed.

Sincerely,

Robert W. Page
Assistant Secretary of the Army
(Civil Works)

Mr. LIVINGSTON. We were really assured that once the law passed, there would be no further delays. The people that live in this area need this not only for recreational access, the sheriff needs it for access for interdiction of drug traffic and law enforcement, and search and rescue. But, for some reason the Corps has just decided that, even though we asked for it two or three years ago and they didn't include it, even though they have dredged the Pearl and didn't include it, even though we have gone back and amended the law to authorize and appropriate funds for the project, that they just don't want to do it. That is the impression I got.

I have gotten great cooperation from Mr. Doyle and from you. I have gotten great cooperation from OMB. But I feel like I am caught between the good guy and the bad guy, but I don't know who the bad guy is. I am not asking you to comment now. I just simply ask you to see if you can revisit it and relook at it. Let's get the project done.

Mr. PAGE. Can we have those documents?

Mr. LIVINGSTON. Yes, sir.

Mr. BEVILL. Yes, sir. They will be included in the record. Write us a letter on that, where you stand on that and what the problem is.

Mr. PAGE. Yes, sir.

[The information follows:]

DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY
WASHINGTON, DC 20310-0103

12 FEB 1990

Honorable Tom Bevill
Chairman
Subcommittee on Energy
and Water Development
Committee on Appropriations
House of Representatives
Washington, D. C. 20515

Dear Mr. Chairman:

At the conclusion of the February 6, 1990, hearing on the Fiscal Year 1991 Civil Works budget, you asked that I write a letter to the members of the Subcommittee to provide a status report on Pearl River (Pump Slough), Louisiana, project. This letter responds to that request.

The annual Appropriations Acts provide funds for prosecution of a large number and wide variety of water resource projects. The Administration is familiar with most of these projects because it has supported their funding in the budget. In the case of the Pearl River (Pump Slough) project, however, funds have been included for activities for which no Army Corps of Engineers report has been submitted. Accordingly, we asked the Corps Vicksburg District to prepare a report which describes the proposed work, its benefits and costs, its environmental impacts, and the terms under which it will be pursued, as is the practice in such cases.

The District report is not yet complete. However, as a result of the District's studies to date, we have gathered sufficient information to allow us to make a determination as to how the project should be pursued, subject to the satisfaction of applicable environmental laws.

Performing this work at Federal expense is in keeping with Section 108 of Public Law 101-101 and the inclusion of funds for this purpose. We anticipate awarding a contract for this work in June 1990.

Sincerely,

Robert W. Page
Assistant Secretary of the Army
(Civil Works)

Mr. LIVINGSTON. Thank you very much, Mr. Chairman.

Mr. BEVILL. Are there any other questions?

QUEEN BESS ISLAND

Mrs. BOGGS. Mr. Chairman, if we are talking specifics, may I ask about Queen Bess Island? Under Section 1135 of the Water Resources Development Act of 1986, you can use dredge spoil to build wetlands.

I was very pleased when you said you wanted to have that authority extended for another five years.

I notice that the Queen Bess Island project has been dropped out of the fiscal year 1990 dredging cycle, and it seems to me that you could use authority under Section 1135 to use the dredge spoils to build the wetlands on Queen Bess. As you know, that is habitat for the Brown Pelican, which is not only a very precious bird to the nation but also the official bird of the State of Louisiana. Could you tell me why it was dropped and what we can do about it?

Mr. PAGE. I can't, but John says he would like to respond to your question.

Mr. DOYLE. As you know, and I talked about this last September, we have tried to move that project forward in a way that would have the Corps and the state in agreement. We came within a pen stroke from making that happen and then learned that there was an authority problem.

Pat, maybe you can help us with that?

General KELLY. We tried under Section 150 of a previous Act which provides for beneficial use of dredged material. But there was a cost limitation and, as it turns out, when General Sands looked at it, he found it exceeded the cost limitation. So we were unable to use Section 150. But I might ask General Williams to take a look at that. When he comes up to testify, perhaps he will cover that. As you suggest, perhaps that is a project that we could do under Section 1135.

Mrs. BOGGS. Good. Thank you.

Mr. BEVILL. Any other statements or questions?

COMPLIMENTS TO LARRY DEVICK

I want to express my appreciation and the committee's appreciation for the year's good work performed by Larry Devick. We appreciate the good work that you did in the last year with our group. We appreciate it very much.

I was just thinking, Mr. Page, you did a great job in presenting your testimony and then the mud began to hit the fan about 12 o'clock. But, fortunately, people don't listen too much after 12. I don't hear a thing the preacher says after 12, so maybe you came out fine after all. But these two matters brought up here, I know you will look into them and take care of them.

Let's see, there was something else. I did want to mention particularly, Mr. Secretary, you mentioned this and I think it is commendable to you and the whole Corps, what you have done with the emergencies that have hit our country.

You know, I have said this many times. The Corps of Engineers is the one agency of our government and Army that we know is

always ready to perform. You prove it every time we have a tornado or a flood or an earthquake or whatever it might be. You always come through with flying colors. So we appreciate you all so much.

Last, but not least, is the fact that you are the best builders in the world. Driving to work this morning, I hit so many pot holes in Washington, that I remembered you are always wanting to expand your jurisdiction, and I am in favor of your jurisdictions being expanded. I hope you can get in the tree planting business by interpretation, but you may have to call on the Public Works Committee to authorize it. I think Congressman Smith made a good point here.

Then, once you set the precedent for planting trees, I think maybe you can just move out from there. But if you can't, we will talk to the Public Works Committee to see if we can't expand your jurisdiction. While we are doing that, we might include repairing the streets of Washington, D.C.

Mr. PAGE. We will take heed.

Mr. BEVILL. I was thinking this morning how many millions of dollars a day is spent repairing cars. The strongest nation on earth and the only capital city in the world that I know of that can't pave streets. So we may want you all to do that.

Any other questions or any statements?

Mr. Myers, could not be here. As you know, he is a faithful attender and does a great job on this panel. Although he could not be here, he does have some questions for you to answer. So, they will be submitted for you to answer. We also have questions from Mr. Watkins, Mr. Conte, Mr. Rogers, Mr. Porter, and Mr. Buechner and ask that you answer them for the record.

[The information follows:]

QUESTIONS FOR THE RECORD FROM MR. MYERS

CARRYOVER BALANCES

Question. What amount is assumed by the FY 1991 budget for carryover balances from the Construction, General account?

Answer. At this point in time, we estimate that about $250 million in unobligated Construction, General funds will be carried over into FY 1991. These funds are part of prior year appropriations for many projects spread throughout our 37 Districts. The unobligated carryover applicable to any specific project is generally small.

QUESTIONS FOR THE RECORD FROM MR. MYERS

OPERATION AND MAINTENANCE ACTIVITIES AT HARBORS AND RECREATION FACILITIES

Question. Does the budget request for the Operation and Maintenance Program assume the termination of Corps activities at any harbor or recreation facility? If so, please identify.

Answer. No. The budget request assumes continuation of Corps operation and maintenance activities at all harbors and recreation facilities with one possible exception. Operation and maintenance of the Wynoochee Lake, Washington project is scheduled to be transferred to the City of Aberdeen, Washington in accordance with Section 4(t) of the 1988 Water Resources Development Act.

O&M PROPOSED USER FEES

Question. Please describe any revenue assumptions made in the O&M budget regarding proposed user fees.

Answer. The Corps is proposing user fees to increase non-Federal financing of the O&M program and reduce the use of general treasury funds. Legislation is being proposed that would increase Special Recreation User Fees (SRUF) by an additional $20 million to help fund the operation and maintenance of Corps recreation facilities. In addition, legislation is being proposed to increase the level of maintenance costs funded by the Harbor Maintenance Trust Fund from 40 percent to 100 percent. This would require an increase in ad valorem user fees from .04 percent to .115 percent of cargo value. We are hopeful that the proposed legislation will be enacted. The budget request for Operation and Maintenance, General, is structured so that, if increased revenues are not available in the Harbor Maintenance Trust Fund, appropriations would be derived from general revenues, thereby assuring that maintenance of commercial navigation projects would not be impaired.

WETLANDS

Mr. MYERS. What is the status of the Corps involvement in the Administration's effort to formulate a "no net loss of wetlands" policy?

Mr. PAGE. I represent the Department of Defense on the Domestic Policy Council's Task Force which is developing the policy. The Task Force has met a number of times during the past year to develop background information which has further defined the no net loss issue. The new Army/EPA Mitigation MOA was discussed at recent meetings. The Task Force plans a series of public hearings during the next six months.

QUESTIONS FOR THE RECORD FROM MR. MYERS

JURISDICTION MOA WITH EPA

Question. How was the Corps role in the Section 404 Permit program affected by the related jurisdictional agreement with the EPA?

Answer. The 1989 MOA on jurisdiction amended a 1980 agreement and expanded it to include Section 404(f) exemptions. The MOA is designed to make best use of our resources. Essentially, the MOA has not changed the day-to-day role of the Corps in determining jurisdiction. With the Corps greater field presence and expertise, it makes good sense for the Corps to serve as the primary implementing agency while recognizing EPA's authority for programmatic management of this aspect of the Section 404 program.

WETLANDS PROTECTION

Mr. MYERS. What is the total amount budgeted within the Regulatory Program request for wetlands protection efforts?

Mr. PAGE. We do not budget in a way that allows us to accurately answer your question. We budget by function which includes the following categories:

Permit evaluation	$53,600
Enforcement	18,600
Studies	1,800
Other Navigation Regulations	500
Environmental Impact Statements	600
	$75,100

Each category includes protection of wetlands as well as protection for many other water resource features such as navigation and water quality. These various features are inextricably linked and, therefore, cannot be monitored as separate entities.

PROJECT MODIFICATIONS FOR IMPROVEMENT OF THE ENVIRONMENT

Question. Section 1135 of PL 99-662 authorizes a demonstration program in the two-year period beginning on the date of enactment of the Act (November 17, 1986) for the purpose of making project modifications for improvement of the environment. Has this authority been extended beyond the period established by PL 99-662?

Answer. Yes, Section 41 of PL 100-676, the Water Resources Act of 1988, enacted on November 17, 1988, extended the demonstration period to five years.

QUESTIONS FOR THE RECORD FROM MR. MYERS

WETLANDS RESEARCH PROGRAM

Question. Please explain how most of the benefits from a new wetlands R&D program will be realized in the O&M program.

Answer. Although, some results of the proposed Wetlands Research Program (WRP) could also be applied during the General Investigations and Construction stages, most of the benefits would be realized in the O & M program where work, such as the disposal of dredged material, must be carefully planned and managed to minimize or mitigate wetland impacts. We expect to develop and demonstrate new or improved wetland restoration, development, stewardship and management techniques for a broad range of operation and maintenance activities which involve coastal, riverine, and upland wetland areas.

CPAR PROPOSAL REVIEW

QUESTIONS FOR THE RECORD FROM MR. MYERS

Question. Describe how the proposals for CPAR funding are reviewed.

Answer. CPAR proposals are evaluated against a set of criteria which stress widespread benefit to the U.S. construction industry in terms of increasing productivity and competitiveness and benefit to Corps missions and construction costs. Other criteria include the overall cost to the Government, duration of the project and ease of integrating the results into the construction industry. Each criterion is evaluated separately and then all individual ratings are considered together to establish a rating for the proposed project. This ensures that the funded projects will provide the greatest benefit to the industry, the Corps, and the nation for each Federal dollar invested.

CPAR COST SHARING

Question. How is the cost-sharing on CPAR ventures determined?

Answer. Cost-sharing is determined during discussion between the Corps laboratory and the construction industry partner, in the project definition stage and prior to the laboratory recommending the project to Headquarters, Corps of Engineers. Based on the work to be done, the laboratory and the partner place a value on the elements of the work using their in-house costs and estimates of services and materials that will be procured. Allowable costs for the laboratory are defined by current regulations; allowable costs for the industry partner are determined by using the provisions of the Federal Acquisition Regulations. Laboratory and, if necessary, Headquarters, Corps of Engineers counsel and audit resources are involved in all phases of the process.

QUESTIONS FOR THE RECORD FROM MR. MYERS

MAGLEV PILOT PROGRAM

Question. Does the FY 1991 budget request for MAGLEV assume enactment of authorizing legislation?

Answer. Yes, the FY91 Civil Works budget request for $3.5 million assumes enactment of legislation that would authorize development of a detailed implementation plan, including concept designs, for a MAGLEV pilot program. The legislation will have to specifically authorize the Corps of Engineers to enter into cost-shared partnership arrangements with U.S. private industry to conduct the research and development for the concept design effort.

Question. What is the Corps capability for MAGLEV in FY 1991 without authorizing legislation?

Answer. Without project-specific authorizing legislation, the Corps can only accomplish preliminary planning and coordination work in preparation for this new mission. Detailed technical work, such as the concept design effort programmed for FY91, would have to be deferred until passage of authorizing legislation. The Corps can work in support of the Department of Transportation as a Support for Others effort, but this would be restricted to use of the funds appropriated to the Department of Transportation.

QUESTIONS FOR THE RECORD FROM MR. MYERS

INFRASTRUCTURE

Question. What other federal entities are participants in the proposed Federal Infrastructure Advisory Board and what are their respective FY 1991 budget requests for this activity?

Answer. The Board would be chaired by the Secretary of the Army and made up of representatives from the Departments of Transportation, Energy, Interior, Commerce, Agriculture, Housing and Urban Development, and Veterans Affairs, as well as the Environmental Protection Agency and the General Services Administration. All agencies would be expected to support the work of the Committee using existing personnel. Under the budget proposal, the Department of the Army, during the first year of effort, would initiate coordination among the Federal study participants, lay out a specific course of action required to establish the Federal infrastructure strategy and open dialogue with states and interested public and private entities. The Army's proposed appropriation would cover this work. The balance of the three year effort would be spent actually developing the strategy and addressing such issues as what the public and private sector roles should be, what the value of infrastructure is and how infrastructure benefits can be used to evaluate and prioritize public and private investment, and finally, what new institutions and institutional changes are needed. Besides this budget request, there are no other agencies requesting funds for this activity.

CORPS RESEARCH AND DEVELOPMENT FUNDS

QUESTIONS FOR THE RECORD FROM MR. MYERS

Question. What is the amount requested for all Corps R&D activities in FY 1991 and how does this compare to FY 1990.

Answer. The following gives Civil Works R&D funding for FY 1990 and the amount requested for FY 1991:

FY 1990:	includes $3.9 million for the Construction Productivity Advancement Research Program; will be augmented by at least another $3.9 million from industry partners.	$34,673,000
FY 1991 requested:	includes $5.0 million for CPAR; will be augmented by at least another $5.0 million from industry partners.	$48,682,000

The increase in requested FY 1991 funds stems from the start-up of a new Climate Change Impact Program, $500,000; the Repair, Evaluation, Maintenance and Repair Research Program-II, $4,000,000; a Wetlands Research Program, $3,000,000; increased effort in the Dredging Research Program, $1,500,000; and the Magnetic Levitation Transportation System Study, $3,500,000.

FLOOD PLAIN MANAGEMENT SERVICES AND
PLANNNING ASSISTANCE TO STATES

MR. MYERS. Does the FY 1991 budget request assume any revenues from proposed user fees to offset the cost of operating the Flood Plain Management Services and Planning Assistance to States programs? If so, please quantify.

MR. PAGE. Yes, it assumes that revenues would total about $1,000,000 for Flood Plain Management Services and about $500,000 for Planning Assistance to States in FY 1991. We propose to ease the impact of cost sharing by phasing it in over a three year period, starting with 10 percent in FY 1991, 30 percent in FY 1992, and 50 percent in FY 1993 and thereafter.

QUESTIONS FOR THE RECORD FROM MR. MYERS

NATIONAL WATER MANAGEMENT DURING DROUGHT STUDY

Question. What is the status of the Water Management During Drought Study and when is it to be completed.

Answer. The three year study was initiated this year using FY 1990 General Investigations Funds. We are about four months into this year's study, therefore it is premature to speculate on its outcome and specific recommendations. However, we have already identified areas where changes to our current response procedures could result in more efficient and improved drought response. These areas are better cooperation and coordination with states and regional water resource associations; improved advance planning; better transfer of existing technology to the people who need it; better data sharing; and greater National water conservation to complement improved supply management, allocation and development. Other areas for improvements and recommendations are being looked at now and we will report on these in the near future. A recommendation whether or not to proceed with the study will be made based upon the first year's effort.

The $2,500,000 requested for FY 1991 will be used to further evaluate the recommendations made and problem areas identified during the first year. The current schedule is to complete the study with funds which would be requested in FY 1992, provided a decision is made to continue the study beyond the first year.

QUESTIONS FOR THE RECORD FROM MR. MYERS

ALASKA OIL SPILL

Question. Please indicate the Corps' expenses associated with the Valdez oil spill and how that work was funded?

Answer. Total Corps expenses thru 30 Sep 89 were $10,284,428. These included not only the costs of the two dredges (ESSAYONS and YAQUINA) while they were employed in the Prince William Sound area, but also all support costs attendant to Corps involvement in clean up operations.

The majority of the expense was initially charged to the CW Revolving Fund. These costs still reside there as no reimbursement has been received. Under procedures established by the Department of Defense, a request for reimbursement by Exxon was included in a consolidated Defense bill sent to the U.S. Coast Guard via the Department of Transportation.

QUESTIONS SUBMITTED FOR THE RECORD FROM MR. MYERS

VALDEZ OIL SPILL

Question. Is the Corps involved in any legal action related to the Valdez Spill? If so, please describe.

Answer. As of february 12, 1990, the Corps is not involved in any legal action related to the Valdez spill.

QUESTION FOR THE RECORD FROM MR. MYERS

FY 91 ENVIRONMENTAL MAINTENANCE AND RESTORATION ACTIVITIES

Question. Provide a list of the 13 environmental maintenance and restoration activities contained in the FY 1991 budget and the amount requested.

Answer. Yes, Sir, I will.

(The information follows:)

Appropriation Title/Project Name (1)	Budget Request ($000)
General Investigations	
Climate Change Research Program - Research and Development	$ 500
Columbia Rivet Treaty Fishing Access Sites, OR & WA (PED)	450
Coordination with Other Agencies:	
National Estuary Program	200
North American Waterfowl Management Program	200
Missouri River Fish and Wildlife Mitigation, IA, NE, KS & MO (PED)	429
Richard B. Russell Dam and Lake, Wildlife Mitigation, GA & SC (PED)	300
Construction, General	
Columbia River Juvenile Fish Mitigation, WA, OR & ID	15,800
Project Modifications for Improvement of the Environment (Sec 1135)	5,000
Tennessee-Tombigbee Waterway Wildlife Mitigation, AL & MS	20,000
Operation and Maintenance, General	
Wetlands Research Program	3,000
Flood Control, Mississippi River and Tributaries	
Davis Pond Freshwater Diversion Structure - Mississippi River Delta Region, LA & MS (Constr)	945
Yazoo Basin Backwater Project Mitigation, MS (Constr)	250
Yazoo Basin, MS - Reformulation Study	5,900
TOTAL	$ 52,974

(1) Includes Administration initiatives as well as Administration support of initiatives begun by Congress in prior years.

QUESTION FOR THE RECORD FROM MR. MYERS

CORPS' FY 91 CONSTRUCTION STARTS REQUEST TO OMB

Question. Did the Corps request any new construction starts from OMB that were not approved? If so, what were they?

Answer. No, we did not request any new construction starts. This is a decision for FY 91 only.

BENEFIT-COST RATIOS FOR FY 1990 NEW CONSTRUCTION STARTS

Question. Please provide a benefit-cost ratio on each of the new construction starts funded in the FY 90 Energy and Water Development Appropriations Act (P.L. 101-101).

Answer. Yes

(The information follows)

BENEFIT-COST RATIO OF FY 1990 NEW CONSTRUCTION STARTS
COMPUTED AT 8.625 PERCENT

NO	PROJECT TITLE	BENEFIT COST RATIO
1	FORT TOULOUSE, AL	N/A
2	MOUND STATE PARK, AL	N/A
3	BEAVER LAKE, AR	N/A
4	CACHE CREEK SETTLING BASIN, CA	1.40
5	GUADALUPE RIVER, CA	1.09
6	SANTA ANA RIVER MAINSTEM, CA	1.30
7	MANATEE COUNTY, FL	5.00
8	SARASOTA COUNTY, FL	1.80
9	SATILLA RIVER BASIN, GA	N/A
10	MAALAEA SMALL BOAT HARBOR, MAUI, HI	5.60
11	HARRISONVILLE AND IVY LANDING LEVEE DIST. NO. 2, IL	N/A
12	LOVES PARK, IL	1.40
13	O'HARE RESERVOIR, IL	1.15
14	LITTLE CALUMET RIVER, IN	2.10
15	WESTWEGO TO HARVEY CANAL, LA (HURRICANE PROTECTION)	3.00
16	ATLANTIC COAST OF MARYLAND, MD	1.40
17	CAPE GIRARDEAU-JACKSON METRO AREA, MO	1.60
18	TRIMBLE WILDLIFE AREA, SMITHVILLE LAKE, MO	N/A
19	HAMLET CITY LAKE, NC	N/A
20	SHEYENNE RIVER, ND 1/	6.10
21	GREAT EGG HARBOR INLET & PECK BEACH, NJ	5.40
22	RAMAPO AND MAHWAH RIVERS, MAHWAH, NJ AND SUFFERN, NY	1.30
23	SHINNECOCK INLET, NY	1.50
24	SMALL BOAT HARBOR, BUFFALO HARBOR, NY	N/A
25	LOCK HAVEN, PA	1.60
26	POINT MARION LOCK AND DAM, MONONGAHELA RIVER, PA & WV.	2.50
27	SIMS BAYOU AT HOUSTON, TX	9.30
28	ROANOKE RIVER UPPER BASIN, HEADWATERS AREA, VA	1.30
29	GRAYS HARBOR, WA (1986 WRDA)	1.70
30	WINFIELD LOCK AND DAM, WV	5.30

1/ SHEYENNE RIVER HAS TWO SEPARABLE ELEMENTS AND WAS COUNTED BY THE ADMINISTRATION AS TWO NEW STARTS.

QUESTIONS FOR THE RECORD FROM MR. MYERS

HARBOR MAINTENANCE TRUST FUND RECEIPTS AND DISTRIBUTION

Question. What were the total receipts and distributions in FY 89 for the Harbor Maintenance Trust Fund?

Answer. Total receipts for FY 89 were $183,149,234. The funds were distributed as follows:

Corps of Engineers	$ 159,026,000
Saint Lawrence Seaway Devel. Corp.	10,456,035
Toll Rebates	11,163,560
Total Distributed:	$ 180,645,595

Balance Carried Forward (incl. FY 88 carryover) $12,311,488

QUESTIONS FOR THE RECORD FROM MR. MYERS

PROJECTED WORK FOR OTHERS FOR FY 91

Question. Provide an agency and other entity breakdown of the Corps' work for others projected in FY 91.

Answer. The Corps of Engineers current schedule to provide support to other agencies and entities in FY 91 is listed below:

PROJECTED WORK FOR OTHERS RESOURCE REQUIREMENTS 1/
FY 91

Agency	$	Manpower
Department of Energy 2/	50	50
Envir Protection Agency		
Superfund	150	398
Construction Grants	17	327
FEMA	5	63
NASA 2/	100	30
Other Federal Agencies	65	180
State and Local Governments	65	50
TOTAL	452	1,098

1/ Dollars in million and manpower in full time equivalent (FTE) except where noted. Chart does not include programs where we have offered Corps support but have not negotiated agreements (i.e., Federal Bureau of Prison Construction, DOE (Supercollider, new production reactors, radioactive waste), and State Department embassy construction program.

2/ Resourced with military manpower.

QUESTIONS FOR THE RECORD FROM MR. MYERS

ESTABLISHING PRIORITIES

Question. How does the Corps establish priority within its limited human and physical resources between work done under the Civil Works appropriation and Support for Others work?

Answer. The Corps of Engineers receives two separate manpower allocations from the Office of Management and Budget. For Fiscal Year 1990 we were allocated 27,372 FTE for Corps Civil Works program and 743 FTE for the EPA Superfund and Construction Grants programs. The requirements for each program are defended separately and do not compete for resources. The remainder of the Support for Others program consists of a number of smaller projects spread throughout field offices totalling about 250 FTE which represents less than one percent of total Civil Works manpower use. Examples of these include design and construction management of an administrative and maintenance facility for the Drug Enforcement Administration, a communications facility for the State Department, and a currency printing facility for the Department of Treasury, among others.

When presenting its annual budget request to OMB, the Corps includes its estimated Support for Others workload in its Civil Works program request. This workload is considered equally by OMB when determining the Corps Civil ceiling. It is the Chief of Engineer's policy that if any Support for Others program becomes significantly large, the Corps will highlight this requirement to OMB in a manner similar to the EPA work and make the Corps acceptance of that work contingent upon allocation of the manpower resources from OMB.

After receiving the OMB ceiling, the SFO projects are resourced similar to Corps Civil Works projects. Practically, the impact in any one office is small. Excluding EPA work, the SFO workload is less than one percent of the total Corps Civil Works manpower allocation and is spread among 92 projects executed by 29 field offices. No one project is expected to utilize more than 19 FTE and no Corps district has more than 36 FTE for Support for Others work in FY 90 (excluding EPA). In FY 90 all Corps divisions and other field offices were staffed at between 92 percent and 98 percent of their requirements as they submitted them.

We view our Support for Others work as an opportunity to maintain and enhance our ability to perform our assigned mission and broaden our skills for new missions Congress may authorize. Support for Others work is undertaken only when it will not adversly impact our Civil Works assignments.

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LEE COUNTY, CAPTIVA ISLAND, FLORIDA

Question. What is the status of the shore protection project at Captiva Island, Florida?

Answer. On September 1, 1988, we executed an agreement under Section 215 of Public Law 90-483, as amended, with the Captiva Erosion Prevention District for the work at Captiva Island, Florida. The construction contract for nourishment was awarded by the local sponsor in July 1988 and that work was completed in April 1989.

Question. Does the project qualify for reimbursement funds in Fiscal Year 1991?

Answer. At this time, the project has not completed the Administration's planning and review process. For this reason, we have not requested funding in the Fiscal Year 1991 budget. Reimbursement would be budgeted only after we have approved the General Design Memorandum and the plans and specifications, as prepared by the Captiva Erosion Prevention District, the work has been accepted by the Corps contracting officer, and the Administration has verified that the project is in compliance with current budget priorities. The design documents are being reviewed by the Jacksonville District and will be forwarded to the South Atlantic Division in April 1990.

QUESTIONS FOR THE RECORD FROM MR. MYERS

PROJECT MANAGEMENT POSITIONS

Question. Describe how the newly created project manager positions fit into the Corps' management structure. Do the project managers report to the District, Division, HQ, or OAS?

Answer. Project managers are employed in the district and report directly to the Deputy District Engineer for Project Management who also serves as the Chief of the Programs and Project Management Division (PPMD). Project progress is monitored monthly through the district, division, and headquarters Project Review Boards (PRB). These boards are composed of each organizations' senior management team to ensure effective management of scope, quality, cost and schedule, thus providing a strong project and partner orientation. The PPMD provides required upward reporting of district PRB actions monthly. Executive Summaries of Division PRB's and related information about projects with special problems are forwarded to Headquarters. My office participates at the headquarters PRB through my Deputy for Project Management. In addition, I am provided and review a monthly executive summary of the Headquarters Project Review Board.

QUESTIONS FOR THE RECORD FROM MR. WATKINS

McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM LOCKS AND DAMS, ARKANSAS AND OKLAHOMA

Question. Is it true that Lock and Dam 0, or the Montgomery Point Lock and Dam, was included in the original plan of development for the Arkansas River Navigation that served as the basis for the waterway project's authorization?

Answer. House Document 79-758, which was the basis for authorization of the project by Public Law 79-525, reflected a lock and dam near the mouth of the White River in the multi-purpose plan. Initial studies indicated this lock and dam would be required to provide sufficient depth over known sediment deposits in the White River Entrance Channel and for varying elevations of the Mississippi River. Subsequent to project authorization, and during detail design studies, this structure was deleted from the system, because the Mississippi River was considered very stable for the Entrance Channel's navigational needs. More recent studies of the Mississippi River have indicated channel stabilization and other related works on the Mississippi River have lowered the stages on the Mississippi River at the entrance to the waterway.

Question. Are you aware that the Waterway Users Board has expressed the view that Montgomery Point Lock and Dam should be constructed at 100 percent Federal expense?

Answer. The Inland Waterways User Board expressed the view that the McClellan-Kerr Arkansas River Navigation System project was authorized at 100 percent Federal expense and that if the proposed Montgomery Point Lock and Dam is found to be economically feasible, it should also be at 100 percent Federal expense. A Department of the Army position has not been established regarding the economic feasibility of this project nor of the appropriate terms for cost sharing construction.

Question. Since 1980, how many navigation days have been lost annually due to low water restrictions at the waterway entrance on the Mississippi River?

Answer. Since 1980, there have been navigation restrictions on the White River Entrance Channel of the McClellan-Kerr Arkansas River Navigation System an average of 42 days per year.

Question. What is your estimate of the economic costs associated with these lost navigation days?

Answer. We have estimated the economic impact to be approximately $425,000 per day for each day navigation restrictions are incurred on the entrance channel.

McCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM LOCKS AND DAMS, ARKANSAS AND OKLAHOMA

Question. What is your estimate of the total public investment to date in the navigation channel proper (i.e., not including Eufaula, Keystone and Oologah Lakes) that would be at risk if low-water restrictions at the entrance of the waterway on the Mississippi River deteriorates to the point that navigation is no longer viable?

Answer. The total public investment for the construction of the McClellan-Kerr Navigation System to date is approximately $1,044,000,000. However, a decision to build a new lock would be based on expected transportation savings resulting from an additional lock not on the historic cost of the waterway.

Question. Recognizing the competition for limited Federal dollars, ultimate correction of the low water restriction problems at the waterway entrance might take a number of years. In view of the enormous Federal investment already in place which is at risk, is it not prudent to take initial steps to protect this investment?

Answer. Low water conditions that occur on the entrance channel cause shippers to turn to other more costly modes of transportation because they perceive the system to be unreliable. To justify an additional lock, the benefits in terms of the expected transportation savings must be greater than the cost of the new facility.

MILITARY MOVEMENTS ON THE INLAND WATERWAYS

Question. How much money was saved as a result of moving an entire brigade of the 101st Airborne Division into Arkansas and Oklahoma via the McClellan-Kerr Arkansas River Navigation System last October?

Answer. The Corps of Engineers does not have an estimate, but information provided by others indicates a total savings of about $274,000.

Question. In addition to the difference between bids received by waterborne transportation vs. rail, what other savings accrued, in terms of time and other costs avoided, by the 101st Airborne's utilization of the inland waterways?

Answer. The Installation Transportation Office of Fort Campbell, Kentucky, advises us that the time required to load and off-load equipment is substantially reduced. For example, off-loading of approximately one half of the brigade at Ft. Chaffee and the remainder at Boudinot Harbor took about one half day each. The loading of the brigade at Ft. Campbell took approximately one day. This represents a savings of time and manpower of at least one half over other modes. No losses resulted from theft, pilferage or vandalism while in transit. Military units which have used the river generally report that vandalism, theft and pilferage is high when using other modes. A dollar estimate of these cost savings has not been developed.

MILITARY MOVEMENTS ON THE INLAND WATERWAYS

Question. Please provide for the Committee an estimate of the savings resulting from the 20th Engineer's movement to Belize over the inland waterways during January 1990, as compared to alternative modes, including rail/ship.

Answer. That information is being requested from the Installation Transportation Office at Ft. Campbell, Kentucky, by the Tulsa District and will be supplied to the Committee when it becomes available.

Question. Has the Military Traffic Management Command or the U.S. Transportation Command been made aware of these activities on the inland waterways?

Answer. It is believed that the State of Oklahoma and the Rogers County Port Authority made a presentation to General Johnson and members of the staff, with the Military Traffic Management Command representatives present, at the U.S. Transportation Command Headquarters at St. Louis, Missouri, on 30 October 1989.

Question. If so, how has the Corps positioned itself to provide continuing support to such an important activity which has demonstrated such significant actual cost savings to the Federal Government?

Answer. The Corps has responded, and will continue to respond, to all inquiries, from whatever source, regarding military use of the inland waterways.

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Water Supply Contracts)

Question. On Aug 7, 1984, MG John F. Wall, former Director of Civil Works, issued a memorandum to all Corps Divisions which stated: "Non-Federal interests should not be advised that modifications (proposed to correct safety deficiencies n dams) will be non-reimbursable until approved by HQUSACE." In light of this policy, why did former Southwestern Division Commander General Dacey testify before this Subcommittee in 1985 that cost sharing would not be required for the repairs to Wister Dam, when, in fact, Corps headquarters later ruled that cost sharing would be required?

Answer. General Dacey's 25 February 1985 testimony was in compliance with your referenced memorandum. AES was not notified there would be no reimbursement for the work. Subsequent to this, the decision was made that the work at Wister was not justified under guidelines defining Dam Safety Assurance work and was therefore categorized as Major Rehabilitation.

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Water Supply Contract)

Question. Corps regulation ER 1130-2-417 directs districts to obtain "current views of the non-Federal sponsors and users concerning cost sharing" of dam safety or major rehabilitation projects, and to indicate "the expected arrangements with the non-Federal sponsors and users concerning cost sharing" in the Reconnaissance Reports and Design Memoranda documents prepared to support such repair projects. In view of this regulation, why was AES/Shady Point, Inc., not notified that it would be expected to cost share in the Wister Dam repairs until five months after the Design Memorandum was published?

Answer. When Applied Energy Services, AES, contacted the Corps in September 1985 requesting water from the Wister Lake project, the decision that the project would be a major rehabilitation project in lieu of a dam safety project had not been made. A draft contract was negotiated with AES and was submitted for approval in April 1986. The report recommending this project as a major rehabilitation project was submitted in June 1986 and approved in December 1986. The impact this change had on the water supply contract, which was in the process of being approved, was not identified before the contract was signed on 13 May 1987. In fact, the impact of the rehabilitation project on AES was not recognized until just prior to notifying them of their obligation in November 1988. The actions of the Army since the issue arose have sought to mitigate any significant cost impact on AES, however. The present estimated effect on AES's contract obligation is calculated based upon the Assistant Secretary of the Army for Civil Works' determination, dated May 26, 1989, that no costs from the rehabilitation work would accrue to the sponsor for a period of 48 months from May 13, 1987 unless they started withdrawal of water prior to that date. The following table shows that, depending on time variables, the cost to AES is as little as $25,000.

Estimated Cost To Applied Energy Service (AES)
(Date of Water Withdrawal vs Estimated Cost)

DATE AES INITIATES WITHDRAWAL OF WATER	ESTIMATED COST TO AES BASED ON 1.73% OF REMAINING REHABILITATION EXPENDITURES
October 1989	$180,000
January 1990	165,000
April 1990	132,000
July 1990	101,000
October 1990	67,000
January 1991	51,000
April 1991	32,000
May 13, 1991	25,000

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Water Supply Contract)

Question. The Wister Dam repairs were first proposed in 1982, and a reconnaissance investigation was well underway by 1985. AES/Shady Point began negotiations for water supply storage in Wister Lake in 1986, and the storage contract was signed in 1987. Why, then, was AES/Shady Point not informed by the Corps of the dam repairs proposed for Wister until the Corps notified the company in November 1988 that it would be required to share in the costs of the work?

Answer. At the time Applied Energy Services, AES, entered into negotiations with the Government for water supply storage in Wister Lake, the repairs to the dam embankment were being evaluated in a reconnaissance study. The repair project had not yet been approved for construction and was still being considered as a dam safety project. When the studies were completed and the repair project approved for construction, it was approved as a dam rehabilitation project requiring cost sharing. The reconnaissance report was approved in December 1986, about five months before the water supply contract with AES was signed in May 1987. The impact of the rehabilitation project on AES was not recognized until after completion of a Feature Design Memorandum in June 1988. The estimated impact on AES was calculated and they were notified in November 1988.

Question. In light of the fact that the Corps began consideration of repairs Wister Dam in 1982 and had completed two Reconnaissance Reports on the repair project before the storage contract was signed with AES/Shady Point, yet failed to inform the company of these major repairs during the contract negotiations, couldn't the Corps be accused of failing to disclose pertinent information key to the negotiations?

Answer. No, the negotiations with Applied Energy Services (AES) regarding the water supply contract were complete and a draft water supply contract was submitted in April 1986. The reconnaissance report on the repair project was not submitted until June 1986. Prior to the submittal of the reconnaissance report, firm and accurate information regarding the dam repair project was not available.

Question. Regardless of who knew what when, shouldn't AES/Shady Point have been included in the planning process for these repairs if it is the Corps' position that they are required to cost share?

Answer. No, the majority of the planning for the rehabilitation project was included in the reconnaissance phase and occurred prior to the signing of a contract with Applied Energy Services, AES. During this pre-contract period there would have been no basis on which to involve AES in our planning process.

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Water Supply Contract)

Question. Shouldn't the company have been afforded the opportunity to recommend cost savings, or at least demand a value engineering study?

Answer. The engineering and planning on this project was well underway prior to the signing of a contract with Applied Energy Services, AES. It is not Corps practice to solicit engineering support from holders of water supply contracts. The Corps has made every attempt to minimize cost and still produce a satisfactory product. The estimated cost of the project has been reduced from $27,900,000 to $11,300,000. The remaining major construction contract is in the process of being awarded, however, we remain open to any cost saving proposal AES may wish to offer.

DENISON DAM - LAKE TEXOMA, OKLAHOMA AND TEXAS
(Restudy)

Question. Last year the Corps refused to support the Broken Bow Reregulation Dam hydropower project even though a non-Federal sponsor had agreed to meet the up-front cost sharing requirements and all provisions of the Water Resources Development Act of 1986 had been met or addressed. Why, then, is the Corps continuing to explore additional hydropower units at Denison Dam as a part of the Lake Texoma Restudy project?

Answer. The Corps policy is to encourage non-Federal interests to develop the hydropower potential where it is feasible and to only pursue Federal hydropower development where such non-Federal activity is impractical. The proposed Broken Bow Reregulation Dam hydropower modification was reviewed and determined to be feasible but not impractical for non-Federal development. In the case of Denison Dam, the addition of hydropower units could be considered impractical for non-Federal development because it would result in a competing use of the Federal hydropower project resources. The determination as to whether the work is more appropriately accomplished by Federal or non-Federal interests, should additional hydropower units at Denison Dam be recommended by the Southwestern Division, will be made during the Washington level review of the submitted feasibility report.

Question. It is true that all power to be produced by any new units at Texoma would be available to Texas consumers only, despite provisions of the Red River Compact which states that Texas and Oklahoma shall share equally in the benefits of Red River water resource projects developed along their common border?

Answer. Although two Texas cooperatives have expressed a strong desire to finance additional units at Denison Dam, sponsor selection procedures have not been initiated. Therefore, final distribution of power from additional units, should they be approved for construction, has not been determined. During the sponsor selection process, all qualified sponsors, including those in Oklahoma, would be considered.

EUFAULA LAKE, OKLAHOMA
(Visitors Center)

Question. In late 1988, the Corps estimated that the proposed Visitors Center at Lake Eufaula could be built for $39 per square foot. In correspondence written just one year later, the Corps indicated that the costs had risen to $85 per square foot plus 15 percent contingencies. What possible explanation can you offer for a 118 percent price increase within one year's time?

Answer. Several items have contributed to the unusually high increase in the cost per square foot of the proposed Visitors Center at Eufaula Lake. It appears the architect-engineer responsible for the preliminary plan for this project may have been too conservative in his estimating practices. It also appears that the decor of the facility desired by the potential users was more costly than originally anticipated by the architect-engineer. The low estimate, the more elaborate design, and inflation have contributed to the cost increase. In order not to mislead the State as to their potential commitment for the size and quality of structure they required, an estimate of $85 per square foot was used in the draft Local Cooperation Agreement.

Question. The Corps has drafted a proposed Local Cooperation Agreement (LCA) for the Visitors Center, which states: "The Local Sponsor will be afforded the opportunity to review and comment on all modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. The Government will consider the comments of the Local Sponsor, but award of contracts, modifications or change orders, and performance of all work on the Project...shall be exclusively within the control of the Government.

If the work involves expenditures of both Federal and non-Federal dollars, why should the Corps have the final say on decisions that might require significant additional non-Federal expenditures?

Answer. The District Commander is designated to be the Contracting Officer. As such, he controls all phases of project management. It is recognized that there is only one Federal Contracting Officer for contracts which involve the obligation and expenditure of Federal funds. The Contracting Officer ensures, however, that the non-Federal sponsor, if it so desires, has the opportunity to provide meaningful comment and input into the resolution of all issues arising under the administration of the contracts in recognition of its substantial contribution to the project. For example, non-Federal sponsors are involved in the preaward process at which time they may influence the type of contract, participate in the award process, be permitted to review all plans and specifications, inspect the construction work, and provide other reviews and input into the process. Final decisions regarding development of contract documents, plans and specifications, award of the contract, and all aspects of contract administration, including, but not limited to resolution of claims and appeals, remain with the Contracting Officer, however. In order to ensure meaningful cooperation in the event that there are increased costs after the negotiation of a Local Cooperation Agreement, regulations allow consideration of negotiated maximum cost clauses. This allows the local sponsor the ability to request the District Commander to defer the award of any construction contract for the project which results in total obligations and expenditures exceeding an agreed upon dollar amount. However, this amount cannot be less than the

EUFAULA LAKE, OKLAHOMA
(Visitors Center) (Continued)

estimated cost of the project as reflected in the Local Cooperation Agreement. If the maximum cost established in the agreement would be exceeded by the award of a contract and the local sponsor requests deferral of the award, the District Commander and local sponsor must develop a mutually agreeable procedure to resolve the inability to award remaining contract(s) on the project or to terminate work.

Question. Where is the "Cooperation" in this "Local Cooperation Agreement"?

Answer. Corps personnel are working closely with the RedArk Development Authority and plan to continue to coordinate with the state agency throughout the planning of this facility. Throughout this process, every attempt will be made to encourage maximum input from the project sponsor.

Question. I understand that under provisions of the Water Resources Development Act of 1986, non-Federal signatories of an LCA can be designated as the project construction manager, rather than the traditional arrangement where the Corps directs the construction project. Could such arrangements be made, where RedArk Development Authority, a public trust of the State of Oklahoma, would direct and manage the construction of the Visitors Center in lieu of the Tulsa District?

Answer. While Section 104 of the Water Resources Development Act of 1986 contains certain specific provisions for crediting work of non-Federal sponsors, no provision allows overall Federal project management to be delegated outside the Federal Government.

Question. If the roles were reversed and RedArk were managing and directing the project, with the Corps providing the Federal share of construction costs, would the Corps agree to an LCA provision stating: "The Government will be afforded the opportunity to review and comment on all modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. The Local Sponsor will consider the comments of the Government, but award of contracts, modifications or change orders, and performance of all work on the Project...shall be exclusively within the control of the Local Sponsor"?

Answer. No. As just explained, the Corps is not authorized to turn over its management responsibilities for authorized projects to non-Federal entities. Accordingly, the provision that you have inquired about, which envisions a reversal in construction management rules, is not one that could be agreed to in a Local Cooperation Agreement.

EUFAULA LAKE, OKLAHOMA
(Visitors Center)

Question. Under the same scenario, would the Corps be anxious to sign an LCA if Red-Ark's construction cost estimates rose 118 percent within a year's time?

Answer. In the scenario suggested, it would be necessary for the Corps to evaluate the circumstances that brought the estimate to that point. If through the planning and design phase of the project, it was determined that cost increases were explainable and the facility was still required, the Corps would proceed in good faith toward execution of a Local Cooperation Agreement with the project sponsor.

Question. What is the status of the justification report?

Answer. Work on the report has been temporarily suspended pending the signing of the Local Cooperation Agreement by the State of Oklahoma.

QUESTIONS FOR THE RECORD FROM MR. WATKINS

POLICY CHANGES

Question. It has come to my attention that your office has directed the Corps to discontinue the 10 percent cash discount normally given to entities with water supply storage contracts who agree to lump sum cash payment for the storage costs, rather than reimbursing the Federal Government over a period of 30 to 50 years. What prompted this change in policy , and when was the change effective?

Answer. Sir, the policy you are referring to was for the sale of storage reallocated to municipal and industrial water supply from another purpose at existing projects. The ten percent cash discount for the updated cost of storage was developed at a time when the interest rate provided by the Water Supply Act of 1958 did not reflect the true cost of Government borrowing; and the congress was considering new cost sharing legislation which would provide a ten percent discount for cash payments of the local share of flood control projects in lieu of repayment. Public Law 99-662 changed the interest rate to be used to accurately reflect the actual cost of Government and did not provide for a discount for cash payments. Therefore, we rescinded the policy of offering the discount effective October 30, 1989.

Question. How many entities have been given the 10 percent cash discount, and what is the total amount of cash discounts the Federal Government has allowed under the former policy?

Answer. Sir, four entities have taken advantage of the ten percent discount. The total amount of cash discounts has been $ 35,000.

Question. What entities have proposed lump sum cash payments who will be denied the 10 percent discount under the new policy, and how much will elimination of the discount cost each of these entities.

Answer. Sir, in order to diminish any potential hardships on those entities whom had been negotiating with the Corps for water supply storage contracts, the Corps was asked to submit recommendations for an exception to the policy change for those entities who had expressed an intent to make cash payments to take advantage of the discount. Twenty such requests were received. An extension was granted to each entity provided the contracts could be finalized by October 30, 1990. While none of these

entities have been denied the discount, it is likely that some of them will not have completed contracts by that date. I cannot tell you at this time which ones make not make the cut-off date. However, if each of the potential contracts are not finalized by October 30, 1990, the total cost to the entities would be about $ 6 million.

Question. Hydropower costs incurred by the Federal Government were to be repaid in much the same way as municipal and industrial water supply storage costs were to be repaid; i.e., the beneficiaries would repay all costs, plus interest, to the Federal Government within a specified time period. When the previous Administration proposed selling the Power Marketing Agencies, it was proposed that Government recover the "Net Present Value" of the outstanding debt associated with hydropower costs. this costing method is based on the fact that a smaller cash payment received now is worth as much or more than a larger amount to be paid in small installments over a number of years.

If entities holding water supply storage contracts were allowed to pay net present values for the remainder of their water supply storage costs, wouldn't this represent, in many cases, a much more substantial savings to these entities than the former 10 percent cash discount?

Answer. Sir, I cannot address the proposals made by the previous Administration regarding the sale of the Power Marketing Agencies. The water supply contracting policies are established on the basis of recovering the value of the Government investment. The repayment policies recognize the time value of money and utilize the interest rates as determined by the department of the Treasury under law. Corps contracts for water supply storage permit the early payment of the remaining principal balance without any prepayment penalties. If a water supply entity is able to obtain financing at more favorable rates and terms than the Federal interest rate established by law, then a net savings could be realized through early payment of the principal balance of a water supply contract. The amount of net savings would be specific to each contract depending upon the federal interest rate contained in the contract, the terms, conditions, and interest rate of alternative financing, and other factors such as the remaining principal balance and number of years remaining on the contract amortization. In general, considering the fact that Federal interest rates have generally been lower than market rates, few of the contracts would realize a substantial savings from refinancing. However, there are some isolated instances where contracts were entered into with the Government at a time in which the Federal interest rate was higher than current market rates. In these instances early payment of the remaining principal balance and refinancing might constitute a savings greater than ten percent.

QUESTIONS FOR THE RECORD FROM MR. WATKINS

COST SHARING OF RECONNAISSANCE STUDIES

Question. I understand that the Corps is proposing, or at least contemplating, requiring cost sharing of reconnaissance studies. What is the rationale for reopening the subject of a 15-year battle between the Administration and Congress -- costsharing -- which we thought was settled with enactment of the Water Resources Development Act of 1986?

Answer. The Administration is concerned that the reconnaissance study program is very costly to the Federal Government in terms of dollar and human resources, provides a level of detail that is insufficient to determine whether there is a justifiable Federal project, and raises prematurely local sponsors' expectations of ultimate Corps of Engineers implementation. The Corps is now looking into options that place more responsibility for this phase of planning of the non-Federal sponsors. No decision has been reached at this point as to whether or how the existing procedure might be changed.

DENISON DAM-LAKE TEXOMA, TEXAS AND OKLAHOMA
(NET PEN PROJECT)

Question. The NetPen Aquaculture Research Project at Platter Flats, Lake Texoma, Oklahoma, has been conducted under a 3-year agreement by RedArk Development Authority, McAlester, Oklahoma. It is my understanding that the Corps is currently compiling a final report on this phase of the Project and that the findings are very positive on the impact on the lake as far as water quality, the positive return to the Corps (compensation) and public perception/interaction with the Project. Could you expound on the findings?

Answer. We are currently working on the final report of the three year study. The water quality study phase of the project has been completed and shows no adverse water quality impacts to the lake or its biological communities. The Corps has been compensated with ten percent of the fish released to the lake. The social impact study, conducted as part of the project, showed that the project was well received by the public and that there was no adverse impact to recreation activities.

Question. When will the report be completed on the Project?

Answer. The completed report will be available September 1990.

Question. It is my further understanding that the Agriculture Research Service, USDA, has indicated to the Corps that the agency would like to continue the research project in such a manner and timeframe as to provide relevant, replicated and substantiated data. Are there any obstacles that would preclude the Corps from continuing this project with the ARS-USDA with respect to the aforementioned considerations?

Answer. We have received a request from the Agriculture Research Service to continue the research project and foresee no obstacles in issuing an agreement to allow continuation of the project.

Question. At what level of the Corps structure and under what terms can approval be given for continuation of this project with the ARS-USDA?

Answer. Authority to review, process and approve the agreement for the Net Pen Agriculture Research project, if it is not controversial, has been delegated to the Tulsa District.

Question. Given that fish must be stocked at the Project by April 1, what timeline can we expect for completion of the agreement by the Corps once specific needs are communicated to the Corps by ARS?

Answer. The Tulsa District is expected to be in a position to issue a five year permit to Agriculture Research Service, United States Department of Agriculture, for continuation of the Net Pen Agriculture Research project by 23 March 1990.

QUESTIONS FOR THE RECORD FROM MR. MYERS

NO NEW STARTS IN FY 1991

Question. The budget request indicates that ongoing project requirements, including the projects added by Congress for FY 1990, do not permit new reconnaissance studies or construction starts in FY 1991. Please provide a table of the projects added by Congress in the FY 1990 Energy and Water Appropriations Act showing the FY 1990 appropriation, the FY 1990 obligation, and the FY 1991 budget request for each.

Answer. Yes.

(The information follows:)

GENERAL INVESTIGATIONS – SURVEYS
ADDED IN FY 1990 E&WD APPROPRIATIONS ACT
(DOLLARS IN THOUSANDS)

DIVISION\STUDY	FY 1990 APPROPRIATION AFTER S&S 1.4% G-R-H	OBLIGATIONS SCHEDULED THRU 30 SEP 90	FY 1991 BUDGET REQUEST
NEW ENGLAND			
CONNECTICUT RIVER, MA	134	134	0
NORTH ATLANTIC			
AIWW BRIDGE AT GREAT BRIDGE,VA	134	143	223
DELAWARE BAY COASTLINE, DE & NJ	89	95	355
JUNIATA RVR BAS FLD WRNG RESP SYS	53	60	60
WYOMING VALLEY (FABRIC DAM), PA	89	100	150
SOUTH ATLANTIC			
CAPE FEAR-NE (CAPE FEAR) R,NC	89	85	160
CHICKASAW CREEK, AL	44	45	30
FROG POND, FL	69	69	98
GLYNN COUNTY BEACHES, GA	356	100	400
SC FL SIMULATION MODEL, FL	44	44	0
ST JOHNS RIVER, FL	67	63	0
ST PETERSBURG HARBOR, FL	44	0	0
TAMPA HBR, ALAFIA R & BIG BEND,FL	89	100	100
WRIGHTSVILLE BEACH-NORTH PORTION, NC	67	68	132
OHIO RIVER			
FISHTRAP LAKE, KY	49	49	171
JEFFERSONVILLE, IN	123	123	127
KY RVR & TRIBS (JACKSON INTER),KY	187	187	220
LAKE ERIE-OH RVR CANAL, OH&PA	223	214	0
MUSKINGUM RIVER WATERFRONT, OH	89	85	0
SALT RIVER BASIN, KY	156	156	225
NORTH CENTRAL			
BLACK HAWK COUNTY, IA	67	71	89
MILWAUKEE METROPOLITAN AREA, WI	89	95	200
ONONDAGA LAKE, NY	247	132	0
RED LAKE AND CLEARWATER RVR,MN	44	48	152
ST LAWRENCE SWY&GTLKS,MI,MN,WI,NY	111	51	0

GENERAL INVESTIGATIONS – SURVEYS
ADDED IN FY 1990 E&WD APPROPRIATIONS ACT
(DOLLARS IN THOUSANDS)

DIVISION\STUDY	FY 1990 APPROPRIATION AFTER S&S 1.4% G–R–H	OBLIGATIONS SCHEDULED THRU 30 SEP 90	FY 1991 BUDGET REQUEST
LOWER MISSISSIPPI VALLEY			
BOEUF TENSAS BASIN, COMP STUDY (MR&T)	275	26	0
PLATTIN CREEK, MO	111	186	155
ST. FRANCIS RIVER, MO & AR (F&WL) (MR&T)	46	50	350
SOUTHWESTERN			
ALBUQUERQUE ARROYOS FLDG, NM	134	100	140
PORT LAVACA TO RED BLUFF, TEXAS	44	43	77
MISSOURI RIVER			
ELM CREEK, NE	74	95	0
NORTH PACIFIC			
COLUMBIA RVR CHNL DEEP, OR & WA	624	488	100
TRI–CITIES LEVEES MODIFICATION,WA	134	143	225
WILLAMETTE RIVER BASIN (SYSTEM),OR	267	286	314
SOUTH PACIFIC			
LAS VEGAS WASH & TRIBS–DUCK CK	267	286	200
LOWER TRUCKEE RECONNAISSANCE STY	44	43	257
RANCHO PALOS VERDES, CA	89	90	0
SAN FRANCISCO CTY, OCEAN BEACH,CA	134	143	336
PACIFIC OCEAN			
NONE			

GENERAL INVESTIGATIONS – PRECONSTRUCTION ENGINEERING AND DESIGN
ADDED IN FY 1990 E&WD APPROPRIATIONS ACT
(DOLLARS IN THOUSANDS)

DIVISION\PROJECT	FY 1990 APPROPRIATION AFTER S&S & 1.4% G-R-H	OBLIGATIONS SCHEDULED THRU 30 SEP 90	FY 1991 BUDGET REQUEST
NEW ENGLAND			
CT RVR BAS,TOWNSHED & BALL MTN DAMS, VT	99	85	0
NORTH ATLANTIC			
BUENA VISTA (LP), VA	148	150	600
SOUTH ATLANTIC			
CANAVERAL HBR (SAND BYPASS),FL	99	85	415
PANAMA CITY HARBOR, FL	99	85	200
PORT EVERGLADES HARBOR, FL	99	0	0
TAMPA BAY (PORT SUTTON), FL	123	134	0
OHIO RIVER			
SOUTH FRANKFORT, KY	197	63	152
NORTH CENTRAL			
ILLINOIIS BEACH STATE PARK, IL	99	60	100
LAKE GEORGE, HOBART, IN	99	95	0
MCCOOK & THORNTON RES (CUP), IL	739	714	0
MENOMINEE HARBOR, MI & WI	69	0	0
LOWER MISSISSIPPI VALLEY			
RRWW, SHREVEPORT, LA TO DANGERFIELD,	739	755	0
RRWW, SHREVEPORT, LA TO INDEX, AR	54	164	0
STE. GENEVIEVE, MO	49	0	0
SOUTHWESTERN			
BIG & LITTLE SALLISAW CKS, OK	99	95	0
CYPRESS CREEK, TX	246	70	0
RRWW, INDEX, AR TO DENISON, TX	197	0	0
MISSOURI RIVER			
MO RVR F&WL MIT, IA,NE,KS,MO	296	118	429
NORTH PACIFIC			
BETHEL BANK STAB, AK	148	25	0
LACONNER, WA	123	0	0
SOUTH PACIFIC			
LOS ANGELES CTY DR AR REV,CA	739	506	2,000
LOS ANGELES–LONG BCH HBRS,CA	739	0	0
RILLITO RIVER, AZ	345	341	610
SACRAMENTO RVR FC (GCID), CA (1)	493	360	0
PACIFIC OCEAN			
NONE			

CONSTRUCTION, GENERAL
PROJECTS ADDED IN FY 1990 E&WD APPROPRIATIONS ACT
(DOLLARS IN THOUSANDS)

DIVISION/PROJECT	FY 1990 APPROPRIATION AFTER S&S & 1.4% G-R-H	OBLIGATIONS SCHEDULED THRU 30 SEP 90	FY 1991 BUDGET REQUEST
NEW ENGLAND			
NONE			
NORTH ATLANTIC			
ATLANTIC COAST OF MARYLAND, MD	8,085	8,085	14,800
GREAT EGG HBR INLET & PECK BCH, NJ	246	237	3,250
JAMES RIVER 35-FT CHNL (1962 ACT),VA	25	0	0
NY HBR COLLEC & REMOV OF DRIFT, NJ	1,880	1,600	0
SHINNECOCK INLET, NY	5,226	5,019	0
SOUTH ATLANTIC			
FORT TOULOUSE, AL	986	137	0
HAMLET CITY LAKE, NC	3,155	288	0
KISSIMMEE RIVER, FL	3,944	300	0
MANATEE COUNTY, FL	4,930	379	2,320
MANTEO (SHALLOWBAG) BAY, NC	493	232	0
MOUND STATE PARK, AL	986	143	0
ROANOKE RVR UPR BAS, HDWTRS AREA,VA	197	189	2,300
SARASOTA COUNTY, FL	1,972	350	2,067
SATILLA RIVER BASIN, GA	493	493	0
OHIO RIVER			
NONE			
NORTH CENTRAL			
LITTLE CALUMET RIVER, IN	2,366	2,366	3,390
LOVES PARK, IL	296	296	1,500
O'HARE RESERVOIR, IL	1,479	1,339	0
ROSEAU RIVER, DUXBY LEVEE, MN	197	367	0
SAYLORVILLE LAKE, IA	12,818	883	0
SMALL BOAT HARBOR, BUFFALO HARBOR,NY	986	125	0
LOWER MISSISSIPPI VALLEY			
CAPE GIRARDEAU-JACKSON METRO AREA,MO	493	400	7,700
HARRISONVILLE & IVY LNDG L.D. #2, IL	986	250	0
MS & LA ESTUARINE AREAS, LA & MS (MR&T)	459	0	0
OUACHITA RVR LEVEES INCL BAWCOMVILLE	394	821	0
RED RIVER EMER BANK PROTEC, AR & LA	1,972	1,660	0
WESTWEGO TO HARVEY CANAL,LA(HUR PRO)	1,085	1,085	3,700
SOUTHWESTERN			
ACEQUIAS IRRIGATION SYSTEM, NM	1,972	1,710	2,000
BEAVER LAKE, AR	1,085	370	300
WALLISVILLE LAKE, TX	3,944	3,599	0

CONSTRUCTION, GENERAL
PROJECTS ADDED IN FY 1990 E&WD APPROPRIATIONS ACT
(DOLLARS IN THOUSANDS)

DIVISION/PROJECT	FY 1990 APPROPRIATION AFTER S&S & 1.4% G-R-H	OBLIGATIONS SCHEDULED THRU 30 SEP 90	FY 1991 BUDGET REQUEST
MISSOURI RIVER			
TRIMBLE WILDLIFE AR,SMITHVILLE LK,MO	1,548	1,570	0
NORTH PACIFIC			
GRAYS HARBOR, WA (1986 WRDA)	12,818	12,818	10,500
ICE HARBOR LOCK AND DAM, WA	99	440	0
LITTLE GOOSE L&D, LAKE BRYAN, WA	4,043	3,165	0
LOWER GRANITE LOCK AND DAM, WA	2,958	1,544	0
LOWER MONUMENTAL LOCK AND DAM, WA	99	1,420	0
MCNARY LOCK & DAM, LAKE WALLULA, OR	1,578	1,655	0
THE DALLES LOCK AND DAM, WA	986	1,638	0
SOUTH PACIFIC			
GUADALUPE RIVER, CA	739	504	9,000
SACRAMENTO URBAN AREA LEVEE RECONSTRUCTION	3,000	3,600	13,470
SWEETWATER RIVER, CA	2,474	3,804	5,000
PACIFIC OCEAN			
MAALAEA SMALL BOAT HARBOR, MAUI, HI	592	68	4,450

SMALL BUSINESS SET-ASIDE FOR CORPS OF ENGINEERS DREDGING

Question. Please provide an analysis of the additional cost to taxpayers of restricted competition on Corps of Engineers projects, especially dredging projects.

Answer. Absent the actual outcome of unrestricted bidding for all contracts, it is not possible to finitely quantify either cost or saving to the Government. However, as a result of small business setasides, the actual results shown in this table would indicate that the setaside and unrestricted bidding climates are producing essentially the same result. I will provide you the table for the record.

SUMMARY OF BID RESULTS FOR SMALL BUSINESS PROGRAM

	No. of Jobs	Govt. Est.	Low Bid	Dollar Savings	Percent Savings
		-- Millions of Dollars --			
Setaside	69	48.93	42.13	6.80	13.90
Unrestricted	139	348.48	306.97	41.51	11.91

SMALL BUSINESS SET-ASIDE FOR CORPS OF ENGINEERS DREDGING

Question. What percentage of the Corps dredging work in 1989 was awarded to small business companies under the targets established in Section 722, Title VII of P.L. 100-656?

Answer. The target for all small business was not met. However, due to delays in rulemaking, the program was not initiated until April 1989. Nevertheless, the target for emerging small business was exceeded as shown on the table below.

SMALL BUSINESS DREDGING FISCAL YEAR 1989

	Target	Actual
All Small Business	20.00%	17.20%
Emerging Small Business	5.00%	8.56%

SMALL BUSINESS SET-ASIDE FOR CORPS OF ENGINEERS DREDGING

Question. Are the companies which qualify for the small business designation under P.L. 100-656 capable of accomplishing all Corps dredging work? If not, please explain.

Answer. There maybe certain jobs which I believe could exceed both the capability and suitability of small business compainies' equipment. However, it is arguable when that threshold is crossed.

SMALL BUSINESS SET-ASIDE FOR CORPS OF ENGINEERS DREDGING

Question. Subtracting any Corps dredging work that small business companies are unable to perform because of equipment or other limitations, what percentage of the remaining 1989 dredging work was awarded to small business companies? How does this compare to the levels in 1987 and 1988?

Answer. We presently do not maintain a record of the historical data requested.

PROJECT DEAUTHORIZATION

Question. Please provide all deauthorization lists that the Corps has submitted to Congress pursuant to Section 1001(b)(1) of P.L. 99-662.

Answer. Section 1001(b)(1) required the Secretary of the Army to transmit to Congress not later than 17 November 1987 a list of unconstructed projects, or separable elements of projects, which had received no obligations during the prior ten full fiscal years. The list was transmitted on 16 November 1987. These projects were automatically deauthorized on 1 January 1990 unless Federal funds were obligated for planning, design or construction before 31 December 1989. The Corps is reviewing all affected projects and will publish the final deauthorization list in the Federal Register.

(The information follows:)

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CONSTRUCTION AUTHORIZATIONS
ELIGIBLE FOR DEAUTHORIZATION IN
ACCORDANCE WITH SEC 1001 PL 99-662

16 NOV 1987

PROJECT NAME	PRIME STATE	PURPOSE	AUTH DATE	LASTYR FUNDS OBLI-GATED	COMMENTS
LITTLE CHENA RIVER DAM	AK	FDP	68		UNCOMPLETE PORTION
LONG LAKE DAM	AK	COM	62		UNCOMPLETE PORTION
GADSDEN TO ROME COOSA RIVER CHANNEL 1945 ACT	AL	N	45		
SIPSEY	AL	FDP	58		
AUGUSTA - CLARENDON, ARKANSAS	AR	FDP	41	77	
BAYOU BARTHOLOMEW AR & LA 1950 & 1966 ACTS	AR	FDP	50		
BELL FOLEY LAKE, ARK, 1938 ACT	AR	FC	38	75	
CLARENDON LEVEE, ARKANSAS	AR	FDP	65	72	
CROOKED CREEK LAKE LEVEE, AR	AR	FC	68	NA	
GRAND PRAIRIE-BAYOU METO, AR	AR	FDP	50	76	
LOWER ARKANSAS RIVER, AR SOUTH BANK	AR	FDP	28	73	UNCOMPLETE PORTION
POSTEN BAYOU AR SEC 201 AUTH 1970 & 1976 ACTS	AR	FDP	70	77	
SECTION 6 LEVEES, AR, LA, IL, MS, MO	AR	FDP	28	38	
VILLAGE CREEK, ARK, 1962 ACT	AR	FC	62	77	
WHITE RIVER FISH HATCHERY, AR 1976 ACT	AR	MP	76		
GILA AND SALT RIVERS, GILLESPIE DAM TO MCDOWELL DA	AZ	FDP	60	74	
GILA RIV-CAMELSBACK DAMSITE TO SALT RIVER, AZ	AZ	FDP	58	75	
PINAL CREEK, GILA COUNTY, 1962 ACT	AZ	FDP	62	73	
WINSLOW AND VICINITY, AZ	AZ	FDP	65	73	
HUMBOLDT BAY, BUHNE POINT	CA	SP	58	64	
LOWER SAN FRANCISCO BAY	CA	N	35		
MONTEREY HARBOR	CA	N	60	74	
NEWPORT BAY HARBOR ORANGE CO (UNCOMPLETE PORTION)	CA	N	37	NA	
PAJARO RIVER FC 1966 ACT, SANTA CRUZ	CA	FDP	66	74	
POINT MUGU TO SAN PEDRO INACTIVE PORTION	CA	SP	45	74	
SALINAS 1944 ACT MONTEREY, CA	CA	FDP	44	62	
SANTA CRUZ COUNTY, SHORELINE PROTECTION	CA	SP	58	72	
SONOMA CREEK 1965 ACT SONOMA CO LEVEES	CA	FDP	65	73	
TAHQUITZ CREEK, CA	CA	FDP	65	74	
VENTURA PIERPONT GRNS-SCN REPL VENTURA CO	CA	SP	54	73	
SOUTH PLATTE RIV,DENVER-FT LUPTON-FT MORGAN,CO	CO	FDP	50	71	
CONNECTICUT RIVER ABOVE HARTFORD, 1930 ACT	CT	N	30	32	
STAMFORD HARBOR, CT	CT	N	46	50	
TRUMBULL LAKE, CT 1966 ACT PEQUONNOCK RIVER	CT	FDP	66	73	
IWW DEL RIV TO CHES BAY NEW CASTLE, & CECIL COUNTY	DE	N	35		UNCOMPLETE PORTION
MURDERKILL RIV, KENT CO 7 FT. CHANNEL	DE	N	92	11	UNCOMPLETE PORTION
REHOBOTH BAY TO DEL BAY, SUSSEX CO, 1945 ACT	DE	N	38	45	UNCOMPLETE PORTION
REHOBOTH BEACH INDIAN RIV INLET 1958 & 1962	DE	SP	58		
ST JONES RIVER KENT CO 1937 ACT	DE	N	37	37	UNCOMPLETE PORTION
CENT & S. FL. (SW DADE CO., AREA)	FL	FDP	65		UNCOMPLETE PORTION
CENT. & S. FL. (BOGGY CR BASIN)	FL	FDP	62		UNCOMPLETE PORTION
CENT. & S. FL. (SMALL BOAT HARBOR)	FL	NAV	70		UNCOMPLETE PORTION
FOUR R. B.(ANCLOTE RIV C-532,S-552)	FL	FDP	62		UNCOMPLETE PORTION
GIWW ST MARKS TO TAMPA BAY, FL	FL	N	68	67	
HILLSBORO INLET (BROWARD COUNTY) FL	FL	N	65		UNCOMPLETE PORTION
KEY WEST	FL	BE	60	60	
LIDO KEY	FL	BE	70		
MULLET KEY	FL	BE	66	73	
PANAMA CITY HARBOR FL. SEC 201 AUTH 1972	FL	N	72	77	
VIRGINIA KEY & KEY BISCAYNE	FL	BE	62	74	
SAVANNAH HARBOR, CHATHAM COUNTY, GA	GA	N	27		
MEEIA-KEA SMALL BOAT HBR, OAHU, HI	HI	N	65	72	
KAILUA SMALL BOAT HBR, OAHU, HI	HI	N.	65	70	

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CONSTRUCTION AUTHORIZATIONS
ELIGIBLE FOR DEAUTHORIZATION IN
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PROJECT NAME	PRIME STATE	PURPOSE	AUTH DATE	LASTYR FUNDS OBLI-GATED	COMMENTS
KAUNAKAKAI DEEP DRAFT HBR, MOLOKAI, HI	HI	N	62		
KAUNAKAKAI SMALL BOAT HBR, MOLOKAI, HI	HI	A	62	66	
LAHAINA SMALL BOAT HBR, MAUI, HI	HI	N	65	77	
MAUNALUA BAY SMALL BOAT HBR, OAHU, HI	HI	N	65	71	
NAWILIWILI DEEP DRAFT HBR, KAUAI, HI	HI	N	70		
REEDS BAY SMALL BOAT HBR, HAWAII, HI	HI	N	65		
LOWER BIG SIOUX RIVER, IA & SD	IA	FDP	65	67	
DWORSHAK ADDED UNITS 5 & 6,ID	ID	HP	62		UNCOMPLETE PORTION
HEISE-ROBERTS EXTENSION, HENRYS FORK UNIT	ID	FDP	50		
LUCKY PEAK SECOND OUTLET	ID	COM	76		PROJECT CONSTRUCTED BY OTHERS
MUD LAKE AREA, ID	ID	FDP	50		
SOUTH FORK CLEARWATER RIVER, ID	ID	FDP	50	71	UNCOMPLETE PORTION
WEISER RIVER, WEISER AREA, ID	ID	FDP	50	75	UNCOMPLETE PORTION
CALUMET HARBOR & RIVER, 62 ACT(UNCOMPLETE PORTION)	IL	N	62	76	
CALUMET HARBOR & RIVER,60 ACT (UNCOMPLETE PORTION)	IL	N	60	73	
CALUMET HBR & RI. 65 ACT (UNCOMPLETE PORTION)	IL	N	65	76	
CHICAGO RIVER 1946 ACT	IL	N	46		
CLEAR CREEK D&LD, ILLINOIS	IL	FDP	36	62	UNCOMPLETE PORTION
EAST CAPE GIRARDEAU & CLEAR CREEK, ILLINOIS	IL	FDP	36	62	UNCOMPLETE PORTION
ILLINOIS WATERWAY, MARSEILLES CANAL	IL	N	35		
MISSISSIPPI RIVER UNCOMPLETED UNITS 9-FT CHANNEL	IL	N	30		
NEW BOSTON SMALL BOAT HARBOR, MISSISSIPPI RIVER	IL	N	62		
PEORIA COUNTY LEVEES	IL	FDP	62	72	
PRESTON D&LD, UNION COUNTY, ILLINOIS	IL	FDP	36	56	UNCOMPLETE PORTION
WAUKEGAN HARBOR (SECTION 201 AUTH)	IL	N	70		
BIG PINE LAKE, IN 1965 ACT	IN	FDP	65	68	
BIG WALNUT LAKE, IN 1968 ACT	IN	FDP	68	74	
GREENFIELD BAYOU, IN 1946 ACT	IN	FDP	46	74	
ISLAND LEVEE, IN 1946 ACT	IN	FDP	46	64	
LAFAYETTE LAKE, IN 1965 ACT	IN	FDP	65	67	
MELVERN & POMONA LAKES RD IMPR, KS 1974 ACT	KS	FC	74		
TUTTLE CREEK LAKE ROAD & BRIDGE, KS 1976 ACT	KS	FC	76		
BOONEVILLE LAKE 1938 & 1944 ACTS	KY	FDP	38	76	
DOVER, KY LPP	KY	FDP	37		
EAGLE CREEK LAKE 1962 ACT	KY	FDP	62	75	
FULLERTON, KY LPP	KY	FDP	37		
GREENUP, KY LPP	KY	FDP	38	46	
LEWISPORT 1938 ACT HANCOCK CO LEVEE & WALL	KY	FDP	38		
MCALPINE L&D-LOU KY & IND ALTER RR BRIDGE	KY	N	09		
MINING CITY LAKE 1938 ACT MUHLENBERG	KY	FDP	38		
NEWPORT-WILDERS, KY 1938 ACT	KY	FDP	37		
NORMAL, KY LPP	KY	FDP	37		
OWENSBORO 1938 ACT DAVIESS CO	KY	FDP	38		
RED RIVER LAKE 1962 ACT POWELL WOLFE &	KY	FDP	62	76	
SMITHLAND 1938 ACT LIVINGSTON CO LEV & WALL	KY	FDP	38		
SOUTH PORTSMOUTH, KY LPP	KY	FDP	37		
WEST POINT 1938 ACT HARDIN CO	KY	FDP	38		
BAYOU BARTHOLOMEW, AR & LA 1950 ACT	LA	FDP	50		
BAYOU LAFOURCHE AND LAFOURCHE JUMP,LA AUXILARY CNL	LA	N	60	76	
BAYOU LAFOURCHE AND LAFOURCHE JUMP,LA MI 0 TO 14.6	LA	N	60	62	
BAYOU SEGNETTE JEFFERSON PARISH,LA 9FT CHANNEL	LA	N	54	72	UNCOMPLETE PORTION

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CONSTRUCTION AUTHORIZATIONS
ELIGIBLE FOR DEAUTHORIZATION IN
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PROJECT NAME	PRIME STATE	PURPOSE	AUTH DATE	LASTYR FUNDS OBLI-GATED	COMMENTS
BAYOU TECHE, LA	LA	N	19	NA	UNCOMPLETE PORTION
RED R WATERWAY, SHREVEPORT, LA TO DAINGERFIELD, TX	LA	N	68	74	
BOSTON HARBOR, MA 1945 ACT, SUFFOLK CO	MA	N	45	67	UNCOMPLETE PORTION
DORCHESTER BAY & NEPONSET RIVER, MA	MA	N	62	68	
NANTASKET BEACH, MA SEC 201 AUTH 1970	MA	SP	70		
NANTUCKET WEST JETTY, MA 1880 ACT	MA	N	80	NA	AUTH DATE 1880, UNCOMPLETE PORTION
PLYMOUTHTOWN BEACH, MA 1960 ACT (REIMB)	MA	SP	60	64	
TAUNTON RIVER, MA 1948 ACT, ANCHORAGE	MA	N	48		
TAUNTON RIVER, MA 1930 ACT, 12 FT CHANNEL	MA	N	30	48	
WAREHAM HARBOR, PLYMOUTH CO 1888 ACT	MA	N	88	96	DATES ARE 1888 & 1896
WESTPORT RIVER, BRISTOL CO,MA	MA	N	38	52	
WHITMANVILLE LAKE, MA 1966 ACT	MA	FDP	66	77	
BETTERTON HARBOR, KENT CO, 1958 ACT	MD	N	58	60	
BRETON BAY, ST MARYS CO, 1902 ACT	MD	N	02	06	UNCOMPLETE PORTION
CAMBRIDGE HARBOR, DORCHESTER CO, 1948 ACT	MD	N	48		
CHESTER RIVER, QUEEN ANNES CO, 1873 ACT	MD	N	73	81	UNCOMPLETE PORTION, DATES ARE 1873&81
OCEAN CITY HARBOR, INLET & SINEPUXENT BAY	MD	N	54		UNCOMPLETE PORTION
POCOMOKE RIVER, SOMERSET & WORCHESTER, 1954 ACT	MD	N	54		
POCOMOKE RIVER, WORCHESTER CO, 1945 ACT	MD	N	45		
BATTLE CREEK, KALAMAZOO RIVER AT	MI	FDP	54	61	UNCOMPLETE PORTION
BLACK RIVER HARBOR, ALCONA CO.	MI	N	70		
DETROIT RIVER TRENTON CHANNEL	MI	N	68		
GREAT LAKES CONNECTING CHANNELS,UNCOMPLETE PORTION	MI	N	46	77	
HOLLAND HBR ENTRANCE CHANNEL (UNCOMPLETE PORTION)	MI	N	54	57	
KALAMAZOO RIVER, AT KALAMAZOO	MI	FDP	58	75	
MENOMINEE RIVER AND HARBOR	MI	N	60	62	
ONTONAGON HARBOR, ONTONAGON COUNTY	MI	N	62		
DULUTH-SUPERIOR INNER HARBOR	MN	N	69		
HARRIET ISLAND HARBOR, MN	MN	N	62	68	
BRAYMER LAKE, SHOAL CREEK, MO	MO	FC	65		
BROOKFIELD LAKE, YELLOW CREEK, MO	MO	FC	65	72	
CHARITON-LITTLE CHARITON BASINS, MO INACTIVE UNITS	MO	FC	65	76	
DRY FORK AND EAST FORK LAKES, FISHING RIVER	MO	FC	65	74	
EAST MUDDY CREEK, MO	MO	FC	65		
GASCONADE RIVER NAVIGATION, MO	MO	N	28	31	
I-38 LAKE, MISSOURI	MO	FDP	66		
IRONDALE LAKE, MISSOURI	MO	FDP	66		
LOWER GRAND RIVER, MO 1965 ACT	MO	FC	65		
MERCER LAKE 1965 ACT	MO	FC	65	75	
MISSOURI RIVER LEVEE SYSTEM UNIT L-100	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-103	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-117	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-121	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-124	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-129	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-134	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-137-139	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-142	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-145	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-154	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-157	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-164	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-175	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-191-196	MO	FC	41	NA	

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MISSOURI RIVER LEVEE SYSTEM UNIT L-205	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-217	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-256	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-294	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-353	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-357	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-36	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-362	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-392	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-419-426	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-435	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-51	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-68-92	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-78	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-94	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT L-99	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-104	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-107	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-112	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-150	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-161	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-169	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-179-184	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-226	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-240	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-251	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-259	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-263-270	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-272	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-284	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-30	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-302	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-328	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-331	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-336	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-361	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-42	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-512-513	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-55-59-61	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-70	MO	FC	41	NA	
MISSOURI RIVER LEVEE SYSTEM UNIT R-87	MO	FC	41	NA	
OSAGE RIVER NAVIGATION, MO	MO	N	28	52	
PATTONSBURG LAKE 1965 ACT	MO	FC	65	73	
PATTONSBURG LAKE, MO I-35 HIGHWAY RELOCATION	MO	FC	65	73	
PATTONSBURG LAKE, MO TOWN RELOCATION	MO	FC	65	72	
TRENTON LAKE 1965 ACT GRUNDY HARRISON DAVIESS	MO	FC	65		
UNION LAKE, MISSOURI	MO	FDP	38	76	
UPPER GRAND RIVER 1965 ACT	MO	FC	65		
NOXUBEE	MS	FDP	58		
PEARL RIVER, MS & LA (1966 MOD)	MS	N	66		
TOMBIGBEE RIVER AL. & MS. 1961 ACT	MS	FDP	41		
WESTFORK	MS	FDP	58		
AIWW-NEW RIVER ONSLOW CO, NC	NC	N	48		
BRUNSWICK CO BCHS-LONG BCH PORTION-BERM	NC	FC	66	75	
WILMINGTON HARBOR WIDENING & DEEPENING, NC	NC	N	45		UNCOMPLETE PORTION
BOISE dE SIOUX & RED R. WAHPINGTON & BRECKENRIDGE	ND	FDP	48	57	
EAGLE BAY & FT YATES HYV BRIDGE, ND	ND	SPE	44	77	

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PEMBINA RIVER LAKE, CAVALIER CO., ND	ND	FDP	44	50	
TONGUE RIVER LAKE, PEMBINA CO., ND	ND	FDP	44	50	
MISSOURI RIVER LEVEE SYST UNIT R531	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R540	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R553	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R555	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R577	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R589	NE	FDP	41	53	
MISSOURI RIVER LEVEE SYST UNIT R603	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R610	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R623	NE	FDP	41	51	
MISSOURI RIVER LEVEE SYST UNIT R644	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R645	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R652	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R661	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R669	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R676	NE	FDP	41	48	
MISSOURI RIVER LEVEE SYST UNIT R682	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R686	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R703	NE	FDP	41	48	
MISSOURI RIVER LEVEE SYST UNIT R717	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R719	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R725	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R728	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R742	NE	FDP	41	54	
MISSOURI RIVER LEVEE SYST UNIT R750	NE	FDP	41	54	
ATLANTIC CITY 1954, 65 ACTS - REIMB	NJ	SP	54	72	
BARNEGAT LIGHT BEACH RESTOR, 1960 ACT	NJ	SP	60	63	
CAPE MAY CITY, CAPE MAY COUNTY 1960 ACT	NJ	SP	60	73	
DE RIVER PHILA PA-TRENTON, SEC 201, TIOGA MARINE	NJ	N	76		
DELAWARE RIV PHILA TO SEA 1945 ACT	NJ	N	45		UNCOMPLETE PORTION
LONG BEACH ISLAND BEACH RESTORATION, 1960 ACT	NJ	SP	60	63	
MANASQUAN RIVER, 1945 ACT	NJ	N	45		UNCOMPLETE PORTION
MATAWAN CR MONMOUTH CO 1881 ACT	NJ	N	81	83	UNCOMPLETE PORTION, DATES ARE 1881 & 1883
MAURICE RIVER, CUMBERLAND CO, 8 FT. 1935 ACT	NJ	N	10	33	UNCOMPLETE PORTION
NEW JERSEY INTRACOASTAL WATERWAY	NJ	N	45	47	UNCOMPLETE PORTION
NEWARK BAY HACKENSACK & PASSAIC	NJ	N	54		UNCOMPLETE PORTION
NORTH WILDWOOD, CAPE MAY CO. 1960 ACT	NJ	SP	60	77	
OCEAN CITY BEACH RESTOR 1954 & 1960 ACTS	NJ	SP	54	70	
PERTH AMBOY 1965 ACT	NJ	BE	65	76	
PT. PLEASANT BEACH TO SEASIDE PARK, 1958 ACT	NJ	SP	58		
RAHWAY RIVER MIDDLESEX & UNION COUNTIES	NJ	N	35		
RARITAN & SANDY HOOK BAY 1962 ACT	NJ	FDP	62	75	UNCOMPLETE PORTION
SALEM RIVER, SALEM CO 1925 ACT	NJ	N	25	28	UNCOMPLETE PORTION
SHOAL HARBOR & COMPTON CREEK	NJ	N	45		
SHREWSBURY MONMOUTH CO 1950 ACT	NJ	N	50		
SHREWSBURY RIVER MONMOUTH CO 1965 ACT	NJ	N	65	76	
STONE HARBOR, 1960 ACT REIMB	NJ	SP	62		
VENTNOR, MARGATE & LONGPORT 1960 ACT	NJ	SP	60	61	
WAY CAKE CREEK MONMOUTH CO	NJ	N	45		
RIO GRANDE, ESPANOLA VALLEY UNIT	NM	FDP	65	68	
CALEDONIA GENESEE RIVER 1950 FC ACT	NY	FDP	50		
CHITTENANGO CREEK AND TRIBUTARIES 1944 FC ACT	NY	FDP	44	45	
EAST ROCKAWAY INLET-ROCK INLET PART 2	NY	FC	65		
FAIRHAVEN BEACH STATE PARK 1958 R&H ACT	NY	SP	58		
FORT NIAGARA STATE PARK SEC 201, 1965 FC ACT	NY	SP	70		
HAMLIN BEACH HARBOR 1968 ACT	NY	N	68	74	
HEMPSTEAD HARBOR 1968 ACT.	NY	N	68		
HUDSON RIVER NYC TO ALBANY 12 FT.	NY	N	10		UNCOMPLETE PORTION

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HUDSON RIVER NYC TO ALBANY 27 FT.	NY	N	25		UNCOMPLETE PORTION
LEMON CREEK RICHMOND CO	NY	N	37		
MANHASSET BAY NASSAU CO	NY	N	30		
NORTH SHORE OF LONG ISLAND	NY	BE	70		
OROMOC CREEK, SUFFOLK CO	NY	N	45		
OSWEGO HARBOR 1930 ACT DEEPEN EAST OUTER HBR	NY	N	30		
PORT BAY 1950 R&N ACT	NY	N	50		
PORT JEFFERSON HARBOR 1968 ACT	NY	N	68	71	UNCOMPLETE PORTION
PORT JEFFERSON HBR SUFFOLK CO 1890 & 1930	NY	N	90		UNCOMPLETE PORTION
SELKIRK SHORES ST.PK.(UNCOMPLETE PORTION) 54 ACT	NY	SP	54	63	
SOUTH ELLENVILLE	NY	FDP	62	72	
STATEN ISLAND, FT WADSWORTH	NY	FDP	65	77	
CLEVELAND HARBOR 1946 R&N ACT	OH	N	46		UNCOMPLETE PORTION
CLEVELAND HARBOR, OH 1958 ACT	OH	N	58	75	UNCOMPLETE PORTION
COAL GROVE OHIO LPP	OH	FDP	38	52	
CONNEAUT HBR 1966 R&N ACT 6FT CHANNEL AND BKW	OH	N	66		
EAGLE CREEK LAKE	OH	FDP	36	46	
EASTLAKE-CHAGRIN RIVER 1965 FC ACT	OH	FDP	65	76	
EDGEWATER PARK 1954 R&N ACT	OH	SP	54		
FAIRPORT HARBOR 1960 R&N ACT	OH	N	60	64	
FAIRPORT HARBOR, OH (SEC 201) 1965 FC ACT	OH	N	77		
HURON HARBOR 1962 ACT ERIE CO (BREAKWATER)	OH	N	62		
LORAIN HARBOR 1960 R&N ACT MODIFIED BY 65 R&N ACT	OH	N	60		UNCOMPLETE PORTION
OTTAWA RIVER HARBOR, OH SEC 201, 1965 FC ACT	OH	N	70	77	
UTICA LAKE, OH	OH	CON	68	75	
WHITE CITY PARK 1954 R&N ACT	OH	SP	54		
BOSWELL LAKE, OK 1946 ACT	OK	FDP	46	60	
CRUTCHO CREEK OKLAHOMA CO	OK	FDP	65	72	
DENISON DAM PWR UNIT 3,4,5 OK,TX 1938 ACT	OK	HYD	38		UNCOMPLETE PORTION
SAND LAKE, OK 1962 ACT	OK	FDP	66		
CATHERINE CREEK LAKE,OR	OR	CON	65	76	
HAYDEN ISLAND MULTNOMAH CO LEVEES	OR	FDP	50		
JOHN DAY ADDITIONAL UNITS OR & WA	OR	CON	50		UNCOMPLETE PORTION
MALHEUR RIVER, WILLOW CREEK UNIT, OR	OR	FDP	50		UNCOMPLETE PORTION
PENINSULAR DRAINAGE DIST 2,LEVEE EXTENSION & RAISE	OR	FDP	50	57	UNCOMPLETE PORTION,LOCALS AGREE TO COST SHARE-7/87
SIUSLAW RIVER - NORTH JETTY 600 FEET EXTENSION	OR	N	10		ALTERNATIVE CONSTRUCTED
TILLAMOOK BAY AND BAR NOBSONVILLE	OR	N	12		UNCOMPLETE PORTION
UMPQUA RIVER-SCHOLFIELD RIVER	OR	N	41		UNCOMPLETE PORTION
WILLAMETTE RIVER BASIN CHANNEL CLEARING	OR	FDP	38		UNCOMPLETE PORTION
BETHLEHEM, NORTHAMPTON COUNTY	PA	FC	56	66	
DELAWARE RIVER PHILA TO TRENTON, 1954 ACT	PA	N	54	65	UNCOMPLETE PORTION
DELAWARE RIVER, PHILA-TO-SEA ANCHOR., 1958 ACT	PA	N	58	64	UNCOMPLETE PORTION
UNIONTOWN FAYETTE COUNTY CHANNEL	PA	FDP	48		
SAN JUAN AND VICINITY	PR	BE	62		
BROADWAY LAKE, SC	SC	EQ	74	77	
ALPINE, TEXAS SEC 281,AUTH 1974	TX	FDP	65	77	
CORPUS CHRISTI SHIP CHANNEL 1913 ACT JETTY	TX	N	13	NA	UNCOMPLETE PORTION
DAM A - JASPER COUNTY, NECHES	TX	N	45		
EAST FORK CHANNEL IMPROVEMENT, INCREMENT NO. 2	TX	FDP	62		
ELM FORK FLOODWAY, TEXAS 1965 ACT	TX	FDP	65	74	
GIWW-SABINE RIV-HOUSTON SHIP CHANNEL, TX	TX	N	62	NA	

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MILL CREEK BRAZOS RIVER AUSTIN CO 1946 ACT	TX	FDP	46	NA	
NAVARRO MILLS LAKE, TX - ROAD RELOCATION 1970 ACT	TX	FDP	54	73	
NAVIDAD & LAVACA RIVERS JACKSON & LAVACA COS	TX	FDP	45	59	UNCOMPLETE PORTION
PECAN BAYOU LAKE, TEXAS - 1968 ACT	TX	FDP	68		
PECOS, TEXAS 1954 ACT	TX	FDP	54	77	
HAMPTON ROADS 1965 ACT	VA	N	65	75	
JAMES RIVER 35-FT CHAN 1962 ACT	VA	N	62	72	UNCOMPLETE PORTION
NEABSCO CREEK PRINCE WILLIAM CO 1881 ACT	VA	N	81	82	UNCOMPLETED PORTION, DATES ARE 1881,82
PAMUNKEY RIVER 1945 HANOVER AND KING	VA	N	45		
SALEM CHURCH LAKE 1968 ACT	VA	CON	68	76	
THIMBLE SHOAL CHANNEL 1954 ACT CHESAPEAKE	VA	N	54		
BENNINGTON 1936 & 1941 ACT	VT	FC	36		UNCOMPLETE PORTION
OTTER CREEK, ADDISON CO	VT	N	72		
RUTLAND OTTER CREEK	VT	FC	36		
COLUMBIA RIVER AT MOUTH - SPUR JETTY B	WA	N	05	74	UNCOMPLETE PORTION
EVERETT HARBOR AND SNOHOMISH RIVER, WA	WA	N	68	73	UNCOMPLETE PORTION
GRAYS HARBOR AND CHEHALIS RIVER, WA	WA	N	48		UNCOMPLETE PORTION
GRAYS HARBOR AND CHEHALIS RIVER, WA	WA	N	30	54	UNCOMPLETE PORTION
OLYMPIA HARBOR WA, THURSTON COUNTY	WA	N	45	73	UNCOMPLETE PORTION
SKAGIT RIVER WA AVON BYPASS	WA	FDP	66	68	
WAHKIAKUM CO DID NO. 4, LEVEE EXT. AND RAISE	WA	FDP	36	73	UNCOMPLETE PORTION
WENATCHEE CANYONS 1 & 2, WA	WA	FDP	70	77	
CASSVILLE SMALL BOAT HARBOR, GRANT COUNTY	WI	N	62	64	
HARBORS OF WASHINGTON ISLAND	WI	N	37		UNCOMPLETE PORTION
KENOSHA HARBOR (UNCOMPLETE PORTION)	WI	N	62	67	
LOWER FOX RIVER, (UNCOMPLETE PORTION)	WI	N	25	NA	
MANITOWOC HARBOR 1962 ACT	WI	N	62	68	
MILWAUKEE OUTER HARBOR (UNCOMPLETE PORTION)	WI	N	35	73	
NORTHPORT HARBOR	WI	N	72	76	
TWO RIVERS HARBOR, (UNCOMPLETE PORTION)	WI	N	35	37	
LEADING CREEK LAKE, WV	WV	CON	38	75	
WEST FORK LAKE, WV	WV	CON	38	75	
BUFFALO, WY	WY	FDP	50	52	
SHERIDAN, WY (STAGE III)	WY	FDP	50	77	

YATESVILLE LAKE, KENTUCKY

Question. What is the history and status of Corp's involvement regarding the acquisition of certain leasehold mineral interests in land owned by the L.E. Cooke Company, Inc. for the Yatesville Lake Project?

Answer. The Government required the acquisition of 930.56 acres of leasehold mineral interests in land owned by the L.E. Cooke Company, Inc. consisting of 17 tracts, 14 of which do not contain merchantable or marketable coal reserves; 910.18 acres were for all right, title and interest, and 20.38 were for a perpetual flowage easement. Three of the tracts have coal with a recoverable tonnage estimated at 158,000 tons. Two of these tracts are considered too small to be mined alone and the remaining tract which is an economic unit has an estimated tonnage of 120,000 tons which is considered recoverable.

The landowners were first notified in April 1973 of the Government's requirement by a Public Announcement. A Public Meeting was held on May 10, 1973, with 600 attendees. On July 5, 1987, L.E. Cooke Company, Inc. filed an inverse condemnation against the U.S. Government in U.S. District Court which the Court ordered transferred to the U.S. Court of Claims on January 5, 1988. In his suit, Mr. Cooke asked for $30.0 million for substantially the same interest the Government required. Mr. Cooke's estimate of $30.0 million was based on 15 million tons of recoverable coal at $2.00 a ton. The Government approved appraisal for these property rights was $37,000.

The Government instituted negotiations with Mr. L.E. Cooke on April 17, 1989 for acquisition of interests in 17 mineral tracts over which the Government has previously acquired the surface interests. These tracts are unimproved and possession by the Government would not cause a displacement. Over the course of the negotiations, Mr. Cooke reduced his claim of recoverable coal to 268,000 tons with a final counteroffer $390,000. The counteroffer was not acceptable to the Government because the Government's approval appraisal was $37,000 and the counteroffer was deemed too high.

The Declaration of Taking was filed on December 6, 1989, and Judgement on Declaration of Taking and Order of Possession were entered on December 18, 1989. Because the Government was not able to reach a settlement with Mr. L.E. Cooke, the dispute will be settled in Claims Court and the case is in the hands of the Justice Department.

QUESTIONS FOR THE RECORD FROM MR. CONTE

MITIGATION PROJECTS AUTHORIZED IN WRDA '86

Question. I would also like to congratulate the Corps on including some very significant initiatives for environmental protection in this year's budget request. Particularly notable is the $5.9 million requested for a Reformulation Study of unconstructed Yazoo Basin projects. I believe that reformulation of the project can and will reduce adverse environmental impacts, and I applaud the Corps for recommending this initiative. It is also encouraging that the Corps has requested funds to initiate wildlife mitigation activities at various Corps projects; this request includes $20 million for a mitigation project, authorized by the landmark Water Resources Development Act of 1986, at the Tennessee-Tombigbee Waterway Project in Alabama. How many other mitigation projects that were authorized in the '86 Act have been funded in this budget or in previous years. What are the Corps' plans for initiation of mitigation projects authorized in the '86 Act which have been unfunded to date.

Answer. Thank you for the kind words about our FY 91 initiatives. Some 32 projects or features of projects were authorized for mitigation in WRDA '86, of which 19 are either complete or being implemented. Of the remaining 13 projects, three projects and one segment of another are either completed or under construction with minimal or no adverse impacts, as the result of engineering and design modifications. One project is on hold pending Corps review under Section 404(b)(1) guidelines. One project should be built by local interests, and seven are not expected to be implemented. If these conditions change, we will consider funding for mitigation at that time.

QUESTIONS FOR THE RECORD FROM MR. CONTE

CORPS SUPPORT TO DOE ON SUPERCONDUCTING SUPER COLLIDER

Question. Exactly what type of "real estate services" is the Corps providing to the Department of Energy in relation to the Superconducting Super Collider project? In what other ways does the Corps hope to provide support to DOE in development of the SSC?

Answer. The State of Texas is responsible for the acquisition of all property and provision of that property at no cost to the United States. Corps real estate services to DOE will consist of the following: (a) expert advice and assistance; (b) review title exceptions for compliance with project needs and Department of Justice title standards; (c) review offers from the State to DOE for conformance with project requirements and Federal title standards; (d) verify legal descriptions and deeds and review titles for encumbrances; (e) inspect the property and accept title on behalf of DOE; (f) monitor the State's acquisition process against DOE's approved schedule; (h) review the State's procedural documents for compliance with PL 91-646; and (i) provide full acquisition services for selected parcels.

We stand ready to support DOE and act as their agent in executing the SSC program. Last year a team from the Corps spent several weeks at DOE helping develop a management plan for the project. The magnitude of the management challenge for the Federal government in this program is enormous. Federal managers must have the technical skills and expertise to insure that the government receives full value for its investment. We believe the expertise and experience of the Corps of Engineers in carrying out Federal management responsibilities in large projects would enhance the SSC effort. In the instance of SSC, it may be most useful for the Corps to contribute to the effort by managing construction activities at the project site.

QUESTIONS FOR THE RECORD FROM MR. CONTE

MAGLEV PILOT PROGRAM

Question. The $3.5 million request for the Magnetic Levitation Transportation Pilot Program seems to represent a major expansion of the Corps' institutional mission. Does it?

Answer. The Corps is a preeminent public engineering organization in this country, and as such represents a major national resource which can be applied to solving many of the Nation's infrastructure problems. Throughout its history, the Corps civil and military missions have included a number of ground transportation projects, including survey and construction work for some of the Nation's first railroads. The MAGLEV Pilot Program is therefore a logical extension of the Corps existing missions to provide engineering service to the Nation.

Question. The Corps has indicated that it is working closely with the Federal Railroad Administration and the Department of Transportation on the magnetic levitation research effort. Has a lead agency been identified for the effort? Do you feel that a particular department or agency should be designated to coordinate future MagLev efforts? If so, which agency do you feel should assume this task?

Answer. Over the past several months, the Corps of Engineers, the Department of Transportation and the other involved Federal agencies have developed a very good working relationship on MAGLEV. We have formed a high-level MAGLEV Executive Committee, jointly chaired by the Corps and the Federal Railroad Administration, and a working-level MAGLEV Interagency Coordinating Committee, and have made significant progress in developing a unified Federal approach to MAGLEV. Each of the Federal agencies brings a unique set of talents and resources to the program. We believe the Corps is best qualified to manage the Federal role in the technology development portions of the program, including any Federal participation in the design and construction of a demonstration project. We also recognize that the Department of Transportation is the appropriate responsible agency on questions of national transportation policy, transportation economics, corridor and righ-of-way issues and safety and operating standards. The coordinated interagency team approach will likely continue through FY91 and FY92, and if successful, may continue through later phases of the program to coordinate the private sector's efforts. If there is a substantial Federal role after FY92, it may be appropriate to

designate a lead agency for some or all of the future MAGLEV tasks. It may also be appropriate to consider establishing a joint project office that would have its own contracting authority and would manage the Federal portion of the MAGLEV Pilot Program.

Question. What is the Total Estimated Cost and estimated duration of the Magnetic Levitiation Transportation Pilot Program? If such estimates do not exist, when will they be available?

Answer. A very approximate estimate of the total cost of designing and building a demonstration project is $1 billion, with a duration of seven to nine years. This estimate is derived from the June 1989 Executive Report of the MagLev Technology Advisory Committee. The Federal share of these costs cannot be determined until the appropriate public and private sector roles have been defined. Our goal is to minimize Federal involvement in the later phases of the program. An improved estimate will be available in the draft program implementation plan, which the Corps is preparing this fiscal year. After the concept design work and the variety of technical and market assessments that will be conducted in FY91 and FY92, we will be able to make a more accurate estimate not only of total program costs, but of the viability of the program and its attractiveness to the private sector. In the same time frame, we will be able to determine the appropriate shares of the Federal Government and U.S. industry in the program costs.

Question. How much of the funds appropriated in FY90 for magnetic levitation efforts have been obligated to date? Please provide details on these obligations.

Answer. Of the $1 million appropriated to the Corps in FY90 for MAGLEV work, $250,000 has been obligated to date to the Huntsville Division to conduct preliminary planning and coordination work. This amount includes minor transfers for support by the Corps laboratories and the Institute for Water Resources. Pending passage of legislation authorizing the Corps to proceed with implementation of the proposed MAGLEV pilot program, the Corps is limited to accomplishing only preliminary planning and coordination efforts in preparation for this mission. The estimate for all such preliminary work in FY90 represents approximately one-half of the FY90 appropriation, or $500,000. The remaining amount will be allocated to initiate the detailed technical work, including contracts and interagency transfers, after the authorizing legislation is enacted.

MODIFICATION OF COST SHARING PROVISIONS

Question. Do you feel that the the cost-sharing provisions of the 1986 Water Resources Development Act are working as intended? In what respects might these provisions need to be modified or strengthened?

Answer. The cost-sharing provisions of the 1986 Water Resources Development Act for project implementation are working as envisioned. Since cost-sharing reforms went into effect in November 1986, the Congress and the Administration have provided continued support for the Nation's water resources program. Project sponsors are strongly committed to the new reforms, as evidenced by the numbers of Local Cooperation Agreements. We have signed Local Cooperation Agreements on 94 specifically authorized projects, including 32 separable elements, in accordance with the new cost-sharing provisions. The total investment represented by these agreements is $4.3 billion, of which more than 35 percent is to be provided by non-Federal sponsors. We believe that reform has helped to insure that every water resource investment is highly cost effective. In some instances, the project scope has been reduced in response to a more optimal design desired by a project sponsor. Project sponsors are generally very supportive of the opportunity for greater involvement in the planning and decisionmaking process afforded by the new procedures. We continue to improve this process as we gain experience. Any need for modifications to the cost-sharing provisions for construction of water resources development projects are not foreseen at this time.

QUESTIONS FOR THE RECORD FROM MR. CONTE

LEGISLATION TO AUTHORIZE NEW WATER PROJECTS

Question. What are the Administration's current plans for submission of legislation to authorize new water projects? Will such a proposal include any reform initiatives? In addition to new projects, will the Corps seek any new authorities or modifications of existing authorities?

Answer. The Department of the Army intends to forward proposed water resources legislation to Congress in the near future. It will include recommended authorization for a small number of Army Corps of Engineers projects which have undergone a favorable review by the Executive Branch. Until the legislative proposal is transmitted to Congress, it is premature to discuss its specifics; however, we can discuss it in general terms. The proposal will not contain any major reform initiatives, but will include several proposals to strengthen Federal/non-Federal partnerships in water resources development as well as several new directions for the Army civil works program. As mentioned in Army's testimony, several legislative proposals would extend the "beneficiary pay" principles established in the WRDA's of '86 and '88, including increasing the harbor manitenance user fee to recover 100% of Corps harbor maintenance costs and recreation user fees at project areas operated and maintained by the Corps. In addition, we will propose legislation to address growing National concerns such as infrastructure, an extension of the environmental restoration authority, and magnetic levitation transportation research. These initiatives will involve either the creation of new authority or modification of existing authorities.

QUESTIONS FOR THE RECORD FROM MR. ROGERS

LEVISA AND TUG FORKS OF THE BIG SANDY RIVER
AND UPPER CUMBERLAND RIVER, WV, VA & KY
(SECTION 202)

Question. Please provide the status of Construction of each of the structural component of the Section 202 Kentucky projects.

Answer. The status of construction of Section 202 project elements in Kentucky follows:

Element	Percent Complete
South Williamson	10
Barbourville	
Cutoff	100
Levee/Floodwall	13
Harlan	2
Pineville	90

Question. When does the Corps anticipate making additional contract awards for the Barbourville element?

Answer. A construction contract for the Barbourville Levee/Floodwall is scheduled to be awarded in the third quarter of Fiscal Year 1990.

Question. P.L. 101-101 specified funds for the Barbourville and Harlan elements. Has the Ohio River Division been authorized to fully obligate these funds? What do you expect to obligate in FY90, including carryover funds?

Answer. All funds specified for the Barbourville and Harlan elements by P.L. 101-101 less the amount sequestered in accordance with the Gramm-Rudman-Hollings Act have been allocated to the Nashville District with full authorization to obligate 100 percent of funds. We anticipate obligating $3,817,000 for Barbourville and $16,180,000 for Harlan in Fiscal Year 1990.

Question. P.L. 101-101 directs that the Corps shall award continuing contracts for construction at Harlan and Barbourville, and that no fully allocated funding policy shall apply to these projects. Is current work on these elements consistent with this legislation?

Answer. Yes, a continuing contract has been awarded at Harlan and a continuing contract is scheduled to be awarded at Barbourville during the third quarter of Fiscal Year 1990. We believe that the ongoing work at both Barbourville and Harlan is consistent with the legislation.

Question. Provide for the record the amounts the Corps requested from OMB for Section 202 Kentucky for FY91, by project element.

Answer. The following amounts were requested in the Fiscal Year 1991 Budget request for the Section 202 Kentucky elements of the project:

ELEMENT	AMOUNT ($000)
South Williamson	
Structural	3,700
Nonstructural	6,340
Barbourville	
Structural	4,100
Nonstructural	1,350
Harlan	
Structural	13,350
Nonstructural	2,370
Other Detailed Studies	690

Question. What is the FY91 capability for the Barbourville and Harlan elements?

Answer. The capability for the Barbourville and Harlan elements are as follows:

ELEMENT	CAPABILITY ($000)
Barbourville	
Structural	6,150
Nonstructural	1,350
Total	7,500
Harlan	
Structural	17,700
Nonstructural	2,800
Total	20,500

Note: The Adminstration's review of the Section 202 project has identified economic and/or policy concerns.

Although project and study capability reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower Army-wide. In this context, the capability amounts shown consider each project or study by itself without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works program in the President's budget is the appropriate amount consistent with the Administration's assessment of National priorities for Federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that Government borrowing is having on the National economy. In order to maintain these overall budgetary objectives, we could only utilize additional funds on individual projects and studies if offsetting reductions were taken.

Question. Please update the Committee on the status of each of the other detailed study investigations for Section 202 Kentucky (including percentage completion.

The status on other detailed studies in Kentucky follows:

ELEMENT	PERCENT COMPLETE
Williamsburg	80
Middlesboro	20
Cumberland	*
Upper Cumberland River Basin	*

*Completion is indefinite pending submission and Washington level processing of the Lower Mingo County (Kermit) report which will incorporate the latest formulation, cost sharing and estimating requirements. This study will then be reevaluated and revised.

QUESTIONS FOR THE RECORD FROM MR. PORTER

ILLINOIS BEACH STATE PARK (IBSP)

Question. The Corps budget request contains $100,000 for the Chicago District for Preconstruction Engineering and Design of a selected shoreline protection plan at Illinois Beach State Park (IBSP). This project was authorized in Section 501(b) of the Water Resources Development Act of 1986 (P.L. 99-662) based on a 1982 Interim Report of the District Engineer, Chicago District. What is the status of this project and what will the budgeted amount be used for? When does the Corps plan to send its report on this project to Congress? Finally, what is the Corps capability in FY 91 for the project as authorized in P.L. 99-662.

Answer. The District Engineer has completed his report. The report is now in the Division Office for review. The Division Engineer's Notice will be released in early March 1990. The Corps will send the report to the Congress after our Washington Office review. The $100,000 requested in the budget will be used for Preconstruction Engineering and Design (PED) provided it receives a favorable review by the Division Engineer and Washington office review. The Corps capability in FY 1991 for this project is the same as the budgeted amount of $100,000.

RECREATION BENEFITS AND THE ILLINOIS BEACH STATE PARK PROJECT

QUESTIONS FOR THE RECORD FROM MR. PORTER

Question. I understand that the Corps recently published a regulation that would exclude recreation benefits from the project benefits section of economic feasibility reports when the recreation component represents more than 50% of the total benefits. If the Principles and Guidelines and authorizing statutes for certain projects allow recreation benefits to be counted, why has the Corps decided to disallow these benefits?

Answer. The referenced guidance is consistent with the Principles and Guidelines and authorizing statutes. All benefits, including recreation benefits, are included for detemination of economic feasibility. The referenced guidance addresses budget prioritization not economic feasibility. It states that, projects which require more than 50% separable recreation benefits for economic justification will not be proposed for inclusion in the Civil Works new start constuction program.

QUESTION FOR THE RECORD FROM MR. BUECHNER

VALLEY PARK LEVEE

Question. Mr. Page, I noticed that no funds were requested for the flood control protection project on the Meramec River for Valley Park, Missouri. The City of Valley Park has taken steps to provide their non-Federal share of $4 million. It also appears to me that the project meets all of your major requirements. Aside from budgetary restrictions, what are the reasons why this project was not included in the FY 91 budget request?

Answer. The project, as earlier formulated did not meet the economic criteria for budgetary support. I understand that the St. Louis District has performed an updated economic analysis of the project, which shows that the project is now economically feasible. If such is the case, I do not believe that any reasons would remain for not including this project. However, the report which includes the economic analysis is still being reviewed through channels, and has not yet been forwarded for my review, so I really cannot offer any definitive projections as to ultimate disposition of the project.

Mr. BEVILL. So we stand adjourned until Thursday at 10 o'clock. We are going to be at the overview hearing on the whole budget that Mr. Whitten referred to tomorrow.

Mr. PAGE. Thank you very much, Mr. Chairman.

THURSDAY, FEBRUARY 8, 1990.

OHIO RIVER DIVISION

WITNESSES

BRIG. GEN. PAUL Y. CHINEN, DIVISION ENGINEER
LOUIS R. LISTERMANN, CHIEF, PROGRAMS MANAGEMENT OFFICE
KENNETH D. HARACK, PROGRAMS MANAGEMENT OFFICE
RICHARD C. ARMSTRONG, CHIEF, ENGINEERING DIVISION
DANIEL E. STEINER, CHIEF, PLANNING DIVISION

Mr. BEVILL. General Chinen, we are pleased to have you with us again. You may want to introduce those who are with you. This is a real special day. This is Congressman Myers' 39th birthday. Congressman Myers, we want to congratulate you on your 39th birthday. We sang Happy Birthday to him at breakfast this morning.

Mr. MYERS. I remember as a kid it used to take a year for a birthday to come around. Anyone who is as old as the Chairman and I would know what I am talking about. You young folks would not know this, but birthdays come around more rapidly now. Thank God I've gotten this far.

Mr. BEVILL. The Chair recognizes General Chinen.

General CHINEN. Mr. Chairman, Congressman Myers and the staff, I am pleased to have this opportunity to report on the status of work in the Ohio River Division. Before I start, I would like to introduce the key members of my staff. On my immediate left is Mr. Louis Listermann, Chief of Programs Management. On his left is Mr. Dick Armstrong, Chief of Engineering. To my right is Mr. Ken Harack, also from Programs Management, and to his right is Mr. Dan Steiner, Chief of Planning.

Mr. BEVILL. We are pleased to have each of you with us.

General CHINEN. Mr. Chairman, with your permission, I would like to submit for the record my status report and give you a brief summary.

AREA OF RESPONSIBILITY

The Ohio River Division is responsible for water resources development within the Ohio River Basin. This area includes portions of 14 states, 69 congressional districts and a population of 25 million. This slide shows our expenditures for the past four fiscal years and our current fiscal year program.

FISCAL YEAR 1991 BUDGET

Our present estimate for fiscal year 1990 is $418 million. Our fiscal year 1991 budget request for $362 million is shown here. These items will be addressed in turn. The budget request will con-

tinue 15 survey efforts; initiate one preconstruction engineering and design, continue eight and complete three others.

UNIONTOWN LOCKS AND DAM

I want to highlight several of the projects in our survey program. This shows the backups at Uniontown Locks and Dam when it was closed for maintenance. The auxiliary lock capacity is inadequate to meet traffic demands when the main lock is closed. In fiscal year 1991 we will complete the reconnaissance phase and initiate the feasibility phase studies.

MARMET LOCKS AND DAM

Marmet Locks and Dam, shown here on the Kanawha River, is the second busiest navigation facility in our system with over 13,000 lockages annually. A new 110- by 800-foot lock appears to be justified. This study is scheduled for completion in fiscal year 1992.

FISCAL YEAR 1990 NEW STARTS

The fiscal year 1990 allocations included funds for Jeffersonville, Indiana; Fishtrap Lake, Kentucky; Jackson, Kentucky; and the Salt River Basin, Kentucky. Follow-on funding for these studies has been included in the fiscal year 1991 budget request. We continue to emphasize local flood protection projects authorized by the 1986 and 1988 Water Resources Development Acts.

METROPOLITAN CINCINNATI, OHIO

Both the cities of Cincinnati and Fairfax, Ohio, have expressed interest in serving as cost sharing partners in a feasibility study. Studies of heavily developed areas along the eastern edge of Cincinnati are being initiated and will be continued in fiscal year 1991.

WABASH RIVER

The 14-county study area, shown here in this slide, lies in west-central Indiana along the Wabash River. Prior reconnaissance level studies have resulted in several spinoff projects under the Continuing Authorities Program. A current reconnaissance study focuses on urban flood problem areas and adequacy of existing agricultural levees.

PRECONSTRUCTION ENGINEERING AND DESIGN

Efforts are underway on 12 preconstruction engineering and design efforts. Locks and Dams 2, 3, and 4 on the Monongahela River are old, deteriorated, and undersized. We will complete our feasibility report during fiscal year 1990. Fiscal year 1991 funds will be used to initiate preconstruction engineering and design.

MC ALPINE LOCKS AND DAM

McAlpine Locks and Dam, shown here, is an integral project in our system of 60 lock and dam facilities. I issued a Notice of Completion for the McAlpine Locks and Dam feasibility report on January 16 this year. The report recommends that the obsolete smaller lock be replaced by a 110- by 1200-foot lock with an estimated cost

of $265 million. We will initiate design of this project using fiscal year 1990 funds and our fiscal year 1991 request will continue these efforts.

OLMSTED LOCKS AND DAM

This project, Olmsted Locks and Dam, will replace Locks and Dams 52 and 53 on the lower Ohio River. Within this decade, traffic will exceed 100 million tons. The project will provide two 1200-foot locks and a navigable pass dam allowing traffic to pass about 58 percent of the time without locking. We will complete plans and specifications for the first construction contract with fiscal year 1991 funds.

CONSTRUCTION, GENERAL

In fiscal year 1991, $177.9 million will be used for construction of 11 projects.

GRAYS LANDING LOCK AND DAM

The Grays Landing Lock and Dam will replace Lock and Dam 7 on the Monongahela River in three phases. Phase I, the right bank excavation shown here, is complete. Phase II, construction of the lock, is scheduled for a bid opening this month. Phase III, construction of the dam, is scheduled for April 1993. Total project completion is expected for August 1995 at an estimated cost of $168 million.

POINT MARION LOCK AND DAM

The Point Marion Lock and Dam project on the Monongahela River will replace the 56- by 360-foot lock with a modern 84- by 720-foot lock. The existing gated dam will remain in place. The construction contract is scheduled for award in April 1990 with project completion scheduled for September 1993.

GALLIPOLIS LOCKS AND DAM

The contract for the two replacement locks at Gallipolis Locks and Dam, pictured here, is 43 percent complete. This $218 million contract is scheduled for completion in November 1992. Engineering and design for rehabilitation of the existing dam is underway and contract award is scheduled for fiscal year 1993. Total project completion is scheduled for June 1999 at a cost of $345 million.

WEST WILLIAMSON, WEST VIRGINIA

A $24.4 million contract for construction of a levee floodwall and pumping station to provide flood protection for West Williamson, West Virginia, shown here, has been completed. In the Central Business District, a $42 million construction contract is 65 percent complete with a scheduled completion of November 1992.

MATEWAN, WEST VIRGINIA

Our plans for Matewan, West Virginia, will provide flood control measures in the Central Business District and along Mate Creek.

The project is expected to be completed in April 1996 at a total cost of $64 million.

HARLAN, KENTUCKY

The flood protection project for Harlan, Kentucky, shown here, includes a combination of levees, floodwalls, and stream diversions. A $29 million contract was awarded in September 1989 for the construction of four 35-foot diameter tunnels, indicated by the purple line. Nonstructural measures will also be implemented. However, no follow on funding is included in the fiscal year 1991 budget request.

STONEWALL JACKSON LAKE

Work remaining on the Stonewall Jackson Lake in West Virginia, shown on this slide, involves the completion of cost-shared recreation facilities. This $231 million project is 87 percent complete with all scheduled work expected to be finished in March 1992.

OPERATIONS AND MAINTENANCE

The $170.6 million for the the Operations and Maintenance Program is 47 percent of the total Ohio River Division budget.

FLOOD DAMAGE PREVENTION

The American people have invested $3 billion in the Ohio River Basin's 77 flood control reservoirs and 89 local flood protection projects. These projects have prevented $9.4 billion in cumulative basin-wide flood damages, a return of $3.13 for every $1.00 invested. Flooding, as shown here in Frankfort, Kentucky, was a problem in the Ohio River Division throughout the year. There were five flood events that resulted in Presidential Disaster Declarations—three in the Commonwealth of Kentucky, one in Ohio and one in Virginia. The Ohio River Division provided recovery support along with hazard mitigation studies.

101ST AIRBORNE DIVISION WATERWAYS MOVE

Last year, the inland waterways systems demonstrated its value as a major mobilization resource when equipment of the 101st Airborne Division became waterborne. The equipment traveled 1700 miles round trip over six rivers from Fort Campbell, Kentucky to Fort Chaffee, Arkansas, and Camp Gruber, Oklahoma. It was the first use of the inland waterways system by the active Army since World War II and the biggest movement of military equipment since that time. Fort Campbell engineer units are currently utilizing an ocean-going barge to move equipment on the Cumberland River to the overseas Central American country of Belize. This move through the Tennessee-Tombigbee Waterway system to Mobile and on to a foreign port has significant implications for future mobilization.

MAXWELL LOCKS AND DAM ACCIDENT

Here at Maxwell Locks and Dam on the Monongahela River in Pennsylvania, 37 loaded coal barges broke loose from a fleeting

area one and one-half miles above the project in the early morning hours on New Years Day. Thirty-four barges came to rest at the dam. Fortunately, four of the five dam gates remained operational. Gate No. 2 was held open 11 feet by the corner of one barge.

In order to remove the barge and close the gate, it was necessary to lower the upstream pool and equalize it with the downstream pool. The obstruction was removed on January 15 and the pool restored two days later. All services are back to normal and salvage contractors, working for the barge owners, are removing the remaining barges and as of today, there are eight barges remaining to be removed. Mr. Chairman, this concludes my statement.

Mr. BEVILL. Thank you, General, for a very fine presentation. We will insert your prepared statement and the justification material for the Ohio River Division in the record at this point, without objection.

[The information follows:]

Status Report on Civil Works Activities
in the Ohio River Division
Fiscal Year 1991
Brigadier General Paul Y. Chinen, Division Engineer

Mr. Chairman and members of the Committee, I am again pleased to have this opportunity to report to you on the work of the Ohio River Division.

AREA OF RESPONSIBILITY

The division is responsible for water resources development within the 204,000 square-mile Ohio River Basin. This area, which includes portions of 14 states and 69 Congressional districts, has a population of 25 million. The Ohio River Basin is a key agricultural, industrial, and manufacturing area in the heartland of the nation.

Centrally located at Cincinnati, Ohio, our headquarters has district offices in Pittsburgh, Penn., Huntington, W.Va.; Louisville, Ky.; and Nashville, Tenn.

This status report covers division expenditures for the past four fiscal years, our programmed expenditures for the current fiscal year, and our Fiscal Year 1991 budget. We will look at the three major programs comprising the budget: General Investigations; Construction; and Operations and Maintenance.

EXPENDITURES FISCAL YEARS 1986-1990

Expenditures for the past four fiscal years and for our current fiscal year program are as follows:

FY 86	$311,498,000
FY 87	356,239,000
FY 88	398,149,000
FY 89	412,314,000
FY 90	418,000,000 (Est.)

FISCAL YEAR 1991 BUDGET

Fiscal Year 1991 budget request is detailed below. These items will be addressed in turn.

General Investigations	$ 13,730,000
Construction	177,921,000 *
Operations & Maintenance	170,615,000
TOTAL	$362,266,000

* Includes $60.9 million from the Inland Waterways Trust Fund.

Ohio River Navigation System

America's inland waterway system is a unique example of the enormous productivity that can be harnessed by an effective partnership between our free enterprise economy and the Federal government. This partnership saves billions of dollars in transportation costs annually -- savings that enhance the efficiency of American agriculture and industry, increase our competitiveness in world markets and ultimately reduce the prices consumers pay for goods and services.

The Ohio River Division is proud of its role in managing a major component of our inland waterways. A significant portion of our current workload is the modernization of the Ohio River Navigation System.

The Ohio River System consists of 2,582 miles of navigable waterways or ten percent of our national system and contains 60 lock and dam projects. This ten percent of the nation's inland waterway miles has 27 percent of its lock and dam projects and moves about 35 percent of the inland tonnage moved.

About half the projects are over 50 years old. Age and deterioration result in longer and more frequent lock closures, costly delays, higher operating costs to both the Corps and industry, and less predictable operations. Sustaining efficient navigation demands careful allocation of scarce resources to modernization and major maintenance, and these challenges will grow in the future as the proportion of older projects increases.

About 230 million tons moved on the Ohio River system in Calendar Year 1988, and movement of these goods by water saved the nation well over $2 billion. Traffic is estimated at approximately 235 million tons in 1989 and should be even higher in 1990. Over the last decade, we have enjoyed an average growth of about five percent each year. By the year 2000, we expect traffic to exceed 250 million tons. While strong traffic growth is an undeniable indicator of the health and vigor of the system, it also forewarns of needs for additional system capacity at critical locations.

The Ohio River Division is committed to maintaining a modern and efficient Ohio River Navigation System for the benefit of the entire nation. Current emphasis is on continuing construction at four projects; continuing design of two projects; and initiating design of another. In addition, we will complete two feasibility studies, continue four others, and initiate another. In Fiscal Year 1991, we will continue with the high priority construction and design efforts underway or initiated this year and will continue five studies.

GENERAL INVESTIGATIONS

The General Investigations Program includes Reconnaissance, Feasibility Studies and Preconstruction Engineering and Design activities. Consistent with our current emphasis on commercial navigation and flood damage prevention efforts. The General Investigations request provides for determining solutions at seven navigation and 20 flood problem areas. Flooding continues to plague the Ohio River Basin, and the Ohio River Division places high priority on analyses of practicable solutions to alleviate flood damages.

	Start	Cont.	Comp.	
Surveys	0	15	0	$ 4,686,000
Preconstruction Engineering & Design	1	8	3	9,044,000
TOTAL	1	23	3	$13,730,000

Navigation Studies and Projects

In Fiscal Year 1991, we will continue five navigation modernization studies; initiate design of one project; continue design of one and complete design of one project.

The navigation modernization studies are the Lower Cumberland and Tennessee Rivers; Uniontown Locks and Dam on the Ohio River; Marmet Locks and Dam on the Kanawha River; the Upper Ohio River; and the Upper Tennessee River.

Lower Cumberland and Tennessee Rivers

The lower Cumberland and Tennessee Rivers are connected by a canal just upstream of Kentucky and Barkley locks. Towboat operators may use this canal to choose alternate routes through these locks. Because of the narrow bends and varying flow conditions which prevail on the lower Cumberland, most operators choose Kentucky Lock, a project currently at 90 percent of capacity with an average delay of four to five hours. Barkley Lock, on the other side of the canal, is underutilized.

Our current studies indicate that straightening selected bends will offer some improvement, but expansion of capacity at Kentucky Lock will likely be required in the near future.

Uniontown Locks and Dam, Ohio River

During Fiscal Year 1990, we will initiate a study of Uniontown Locks and Dam. Almost 68 million tons moved through the project in 1988, and traffic has grown at nearly six percent per year since 1983. The capacity of the auxiliary lock is currently inadequate to meet traffic demands during maintenance closures of the main lock. During a 46-day closure of the main lock in August and September of 1989, 854 tows were delayed a total of almost 40,000 hours with an average delay of 47 hours per tow. Delay costs amounted to nearly $12 million. In Fiscal Year 1991, we will complete the reconnaissance phase and initiate the feasibility phase studies.

Marmet Locks and Dam, Kanawha River

Marmet Locks and Dam on the Kanawha River is the second busiest navigation facility in our system with over 13,000 lockages annually. The twin 56-foot by 360-foot locks can accommodate only one jumbo barge in a single lockage. As a result, lockage and delay costs at Marmet are excessive compared to projects having dimensions compatible with modern towing equipment. Modernization will be an important factor in the marketability of low-sulfur coal reserves in the Kanawha Valley. An additional 110-foot by 800-foot lock, similar to the new project being constructed just downstream at Winfield Locks and Dam, appears to be justified at Marmet. This study is scheduled for completion in Fiscal Year 1992.

Upper Ohio River

On the Upper Ohio River, we are evaluating improvements at Emsworth, Dashields, and Montgomery Locks and Dams. When the new locks at Gallipolis are completed, these three projects will be the only facilities on the Ohio River without a 110-foot by 1,200-foot main chamber, the size required to serve a typical 15-barge Ohio River tow in a single lockage. Since recent rehabilitation will extend the physical lives of these projects, our preliminary studies had indicated that major modernization actions would not be required in the near future. However, our most recent analysis of operating efficiency and forecast traffic at the Montgomery project indicate that the economic capacity of these locks will be exceeded by the year 2000. Studies during Fiscal Year 1991 will provide a basis for determining the most appropriate time frame for modernization of the Upper Ohio.

Upper Tennessee River

Chickamauga and Watts Bar Locks and Dams on the Tennessee River have 60-foot by 360-foot single locks capable of serving only one jumbo barge in a single lockage. Delays are excessive, and preliminary studies show that rates for water movements originating above Chickamauga are as much as two times higher than for movements with origins below the project. These problems are being evaluated in our Upper Tennessee River Navigation Study which is scheduled for completion in Fiscal Year 1994.

Fiscal Year 1991 funds will be used to initiate design on the Lower Monongahela modernization projects; and continue design of McAlpine Locks and Dam and complete preconstruction engineering and design of the initial contract at Olmsted Locks and Dam.

Locks and Dams 2, 3 and 4, Monongahela River

Locks and Dams 2, 3, and 4 on the lower Monongahela River pose the challenges of age, deterioration, structural stability and undersize locks. Detailed engineering evaluations demonstrate that without major investment, we will experience declining reliability, frequent and long interruptions of navigation due to maintenance closures, and high delay costs to shippers. In addition, undersize locks will stifle adoption of more economical towing equipment and configurations. We will complete our feasibility report during Fiscal Year 1990. Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design.

McAlpine Locks and Dam, Ohio River

McAlpine Locks and Dam is located at Louisville, Ky. Our investigations have concluded that the inefficient and small 110-foot by 600-foot auxiliary lock chamber must be replaced to economically meet the needs of current and future navigation. On January 16, 1990, the Division Engineer issued a Notice of Completion for the McAlpine feasibility report. The report recommends construction of a new 110-foot by 1,200-foot lock to replace the 600-foot auxiliary lock at an estimated cost of $265 million. We will initiate design of this project using Fiscal Year 1990 funds and our Fiscal Year 1991 request will continue this effort.

Olmsted Locks and Dam, Ohio River

Olmsted Locks and Dam will modernize the hub of our entire inland navigation system by replacing Locks and Dams 52 and 53 on the lower Ohio River. These facilities are over 60 years old. Within this decade traffic will exceed 100 million tons at these critical projects. Age and deterioration already impose significant constraints to efficient navigation and will become even bigger problems in the years ahead. The estimated $990 million Olmsted project will provide two 1,200-foot locks and a high-lift, navigable pass dam allowing traffic to pass about 58 percent of the time without locking. We will complete plans and specifications for the first construction contract with Fiscal Year 1991 funds.

Fiscal Year 1990 New Starts

Fiscal Year 1990 allocations included funds to initiate Reconnaissance Studies for one project in Indiana and three in Kentucky: Jeffersonville, Ind.; Fishtrap Lake; Jackson; and the Salt River Basin. The Reconnaissance Studies will be completed with Fiscal Year 1991 funds.

Jeffersonville, Indiana

Jeffersonville, Ind., is located immediately across the Ohio River from Louisville, Ky. On-going bank erosion problems are interfering with development by the city of several waterfront improvement projects. Improvements would include bank stabilization, parking, a launch ramp and other day-use facilities.

Fishtrap Lake, Kentucky

Fishtrap Lake, on the Levisa Fork of the Big Sandy River in eastern Kentucky, has been an effective flood control project for 20 years and has prevented damages valued at five times the project cost. Relocated roads replaced valley roads when the project was constructed. However, ongoing problems and complaints have persisted for two decades about relocated roads on the north side of the lake. The reconnaissance study will evaluate alternative remedial measures.

Jackson, Kentucky

Jackson, Ky., located on the North Fork of the Kentucky River, experiences flood problems. A 100-year flood event would cause in excess of $3.4 million in damages and affect about 300 structures. The Mayor of Jackson and the Breathitt County Judge Executive have expressed interest in cost sharing a feasibility study upon completion of a favorable reconnaissance study.

Salt River Basin, Kentucky

The Salt River Basin, southwest of Louisville, Ky., suffered major flooding in 1989, resulting in a Presidentially-declared disaster. In addition to flood protection, local interests are concerned about municipal and industrial water supply.

Flood Control Efforts

Three reconnaissance studies are scheduled for completion in Fiscal Year 1990: the Little Kanawha Basin, W.Va.; Metropolitan Louisville, Ky.; and the Monongahela River Basin, W.Va., and Penn.

Fiscal Year 1991 funding will provide for planning activities on 16 other flood control efforts as follows:

Reconnaissance Study

Complete with Fiscal Year 1991 funds

-- Trumbull County, Ohio

Feasibility Studies

Initiate with Fiscal Year 1991 funds

-- Licking River Basin, Ky.
-- Monongahela River Basin, W.Va., and Pa.
-- Wabash River Basin Comprehensive, Ind., and Ill., Middle Reaches in Indiana

Continue with Fiscal year 1991 funds

-- Metropolitan Louisville, Ky.
-- Metropolitan Cincinnati, Ohio
-- Little Kanawha River Basin, W.Va.

Preconstruction Engineering and Design

Continue with Fiscal Year 1991 funds

-- Hazard, Ky.
-- Holes Creek at West Carrollton, Ohio
-- West Columbus, Ohio
-- Saw Mill Run, Penn.
-- Mill Creek, Tenn.
-- Cabin Creek, W.Va.
-- Island Creek at Logan, W.Va.

Complete with Fiscal Year 1991 funds

-- South Frankfort, Ky.
-- Fairfield, Ohio

Reconnaissance Study

One reconnaissance study will be completed with Fiscal Year 1991 funds.

Trumbull County, Ohio

Trumbull County, Ohio, lies within the Mahoning River Basin. The study will address existing water resources, projections of water demand, and reallocation opportunities at four Federal reservoirs to develop a strategy to enhance municipal and industrial water supply for the area.

Feasibility Studies

Three feasibility studies will be initiated with Fiscal Year 1991 funds.

Licking River Basin, Kentucky

The Licking River Basin in eastern Kentucky has more than a dozen urban communities which are subject to recurrent flooding and which are concerned about water supply, having suffered droughts in 1983, 1986, and 1988. Reconnaissance-level hydrologic, economic, and engineering studies are underway. If Federal interest is established, numerous local governing bodies will support initiating cost shared feasibility studies.

Monongahela River Basin, West Virginia and Pennsylvania

Major flooding in 1985 stimulated interest in a review of previous reports on the Monongahela Basin in West Virginia and Pennsylvania to determine the advisability of improvements to alleviate flood damages. Current reconnaissance studies are focused on local flood protection for urban areas and regional flood control within the Cheat River Subbasin. If Federal interest is established, both local and state governments will be involved in cost shared feasibility studies.

Wabash River Basin Comprehensive, Indiana and Illinois
Middle Reaches in Indiana

The 14-county study area lies in west-central Indiana along the Wabash River. Prior reconnaissance-level studies have resulted in several spinoff projects under the Continuing Authorities Program. A current reconnaissance study focuses on urban flood problem areas and adequacy of existing agricultural levees with evolving projects advancing to the feasibility study stage in Fiscal Year 1991.

Three feasibility studies will be continued with Fiscal Year 1991 funds.

Metropolitan Louisville, Kentucky

Metropolitan Louisville encompasses three counties in Kentucky and three counties in Indiana. The initial focus on the reconnaissance study is Jefferson County, Ky., in which Louisville is located. Flood problems persist along the North, Middle, and South Forks of Beargrass Creek; on Pond Creek; and on Floyd's Fork. The Metropolitan Sewer District has indicated an interest as a cost sharing partner in the feasibility study upon completion of a favorable reconnaissance study.

Metropolitan Cincinnati, Ohio

Metropolitan Cincinnati encompasses eight counties in Ohio, Kentucky, and Indiana, with increasing flood problems. The focus of the initial reconnaissance study is on the City of Cincinnati and Hamilton County, Ohio. The city and county have expressed interest in serving as a cost sharing partner in the feasibility study. Feasibility phase studies of heavily developed areas along Duck and Little Duck Creeks on the eastern edge of Cincinnati are being initiated and will be continued in Fiscal Year 1991.

Little Kanawha River Basin, West Virginia

The Little Kanawha River Basin comprises the major portions of seven counties in central West Virginia. In 1985, an extensive portion of the basin was declared a disaster area after suffering flood damages totaling $32 million. The State of West Virginia has indicated a willingness to cost share the feasibility study if the reconnaissance study is favorable.

Preconstruction Engineering and Design

Preconstruction engineering and design activities will be continued for seven projects with Fiscal Year 1991 funds.

Hazard, Kentucky

Hazard is located in southeastern Kentucky on the North Fork of the Kentucky River. Major floods occurred in 1957, 1963 and 1984. A recurrence of the 1957 flood would result in damages at today's price level of $51 million. The local sponsor, the City of Hazard, will bear 25 percent of the costs of channel improvement, estimated to cost $8.3 million.

Holes Creek, West Carrollton, Ohio

A project currently is being reformulated for Holes Creek at West Carrollton, Ohio, consisting of channel improvements and modification of the existing railroad bridge. The local sponsor, the Miami Conservancy District, will cost share the project.

West Columbus, Ohio

West Columbus, Ohio, at the confluence of the Scioto and Olentangy Rivers, is flooded by both rivers. A recurrence of the 1959 flood would produce damages totaling $239 million at today's price level. The project consists of floodwalls, levees, gate closures, pump stations, and interior drainage facilities. The City of Columbus, Ohio, the local sponsor, will provide 25 percent of the total project costs.

Saw Mill Run, Pennsylvania

The lower half of the Saw Mill Run drainage area is located within the city limits of Pittsburgh, Penn. The authorized project, to deepen and realign Saw Mill Run, is being reevaluated to reflect current conditions. The City of Pittsburgh has indicated interest as a sponsor.

Mill Creek, Tennessee

The Mill Creek project is within Metropolitan Nashville, Tenn. The Metro Nashville governing body is the local sponsor. Two dry-bed reservoirs and channel widening will reduce damages to 1,102 floodprone structures which experience average annual flood damages of $1.7 million. The local sponsor will bear 50 percent of the total project costs of $15 million.

Cabin Creek, West Virginia

Cabin Creek is a tributary to the Kanawha River upstream from Charleston, W.Va. Because of significant changes within the basin since authorization, the project is being reevaluated. The Kanawha County Court and the State of West Virginia have indicated interest as non-Federal sponsors.

Island Creek, Logan, West Virginia

The Island Creek Basin is a sub-basin of the Guyandotte River Basin in West Virginia. A 100-year flood event would cause damages of $57 million to 1,874 structures. The authorized plan is being reevaluated. The Logan County Commission has expressed interest as a sponsor.

Preconstruction engineering and design will be completed for two projects with Fiscal Year 1991 funds.

South Frankfort, Kentucky

South Frankfort, Ky., located on the Kentucky River, experienced its most damaging flood in 1978, a recurrence of which would result in damages at today's price level of $47 million. The local sponsor, the City of Frankfort, Ky., prefers a plan which would provide protection greater than that which would be provided by the National Economic Development plan. The local sponsor will be required to bear the additional costs associated with this greater protection.

Fairfield, Ohio

Fairfield, Ohio, north of Cincinnati, is located on Pleasant Run Creek. A recurrence of the flood of 1979 would cause damages of $4 million at today's price level. The project includes channel improvements and dry-bed reservoirs with recreational development at each. The local sponsors, the Pleasant Run Watershed Subdistrict of the Miami Conservancy District and the City of Fairfield, will bear 40 percent of the total project costs.

CONSTRUCTION

In Fiscal Year 1991, $177.921 million will be used to continue construction of 11 projects.

	Projects	
Navigation	4	$121,800,000 *
Flood Control	6	55,286,000
Dam Safety Assurance	1	835,000
TOTAL	11	$177,921,000

* Includes $60.9 million from the Inland Waterways Trust Fund.

Point Marion Lock and Dam, Monongahela River

Point Marion Lock and Dam project on the Monongahela River is physically deteriorated, obsolete in terms of river traffic capacity, and is near the end of its economic life. The current project contains a 56-foot by 360-foot lock that will be replaced by a modern 84-foot by 720-foot lock. The existing gated dam will remain in place. The plans and specifications for the new lock are complete and the construction contract is scheduled for award in April 1990. Completion of the project is scheduled for September 1993 and estimated to cost $96.4 million.

Grays Landing Lock and Dam, Monongahela River

The Grays Landing Lock and Dam, under construction on the Monongahela River at Grays Landing, Penn., will replace Lock and Dam 7. The project will be constructed in three phases. The Phase I contract for the right bank excavation was awarded in May 1988 for $12 million and is complete. Phase II, construction of the lock, is scheduled for a bid opening this month. Phase III, construction of the dam, is scheduled for construction in April 1993, and removal of the existing project is scheduled for November 1994. Total project completion is scheduled for August 1995 at an estimated cost of $168 million.

Gallipolis Locks and Dam, Ohio River

At Gallipolis Locks and Dam on the Ohio River we are replacing the two existing locks with two new locks, 1,200 by 100 feet and 600 by 110 feet, and rehabilitating the dam structure. The $217.9 million contract for the construction of locks in a two-mile-long, 500-foot wide bypass canal on the West Virginia side of the river is 43 percent complete and scheduled for completion in November 1992. Engineering and design for rehabilitation of the existing dam is underway. Contract award for this phase is scheduled for Fiscal Year 1993. Total project completion is scheduled for June 1999 at a cost of $345 million.

Winfield Locks and Dam, Kanawha River

Winfield Locks and Dam on the Kanawha River is the busiest project in the inland waterway system in terms of total lockages. The plan for modernizing Winfield includes construction of an additional 110-foot by 800-foot lock chamber, located landward of the existing locks, and a 110-foot non-navigable gate bay. Construction of the Winfield replacement lock is scheduled to begin this fiscal year. The $203 million project is scheduled for completion in September 1995.

Evansville, Indiana

Construction continues on the $56.6 million flood control project for Evansville, Ind. The project is a system of earth levees, concrete floodwalls and pumping plants. The overall project is 66 percent complete with a scheduled completion date of August 1994.

Yatesville Lake, Kentucky

The Yatesville Lake, Ky., dam is complete and is capable of providing flood protection at this time. Pool impoundment is expected to begin in late Fiscal Year 1990 after completion of cemetery relocations and pool clearing. The overall $106 million project is scheduled for completion in September 1992.

Mill Creek, Ohio

The $197.7 million Mill Creek local protection project, extending through a highly-industrialized section of Cincinnati, Ohio, is 45 percent complete and is scheduled for completion in December 1998.

Turtle Creek, Pennsylvania

The Turtle Creek local protection project, built in 1967 near Pittsburgh, has deteriorated to the point of being ineffective for flood control. Project work involves debris and sediment removal from the stream channels and debris basins; restoration and repair of side slopes, concrete retaining walls, debris dams, trashracks, concrete joints and drainage structures. The project is scheduled for a April 1990 construction start with completion scheduled for September 1991.

Williamson, West Virginia

A $24.4 million contract for construction of a levee, floodwall and pumping station to provide flood protection for West Williamson, W.Va., has been completed. In Williamson, a $41.9 million construction contract is underway to provide flood protection for the Central Business District. The contract is 65 percent complete with a scheduled completion of November 1992. Non-structural measures, such as raising homes and flood plain evacuation, are being implemented. The Valley View resettlement site is complete.

South Williamson, Kentucky

Across the river in South Williamson, Ky., a project is underway to protect the primary residential area. The total project is expected to be completed in December 1994 and will cost approximately $65.3 million.

Matewan, West Virginia

At Matewan, W.Va., located in the southwestern part of the state along the Tug Fork River, the proposed plan will provide flood control measures in the Central Business District and along Mate Creek. Fiscal Year 1991 funds will be used to continue real estate acquisition and relocations. The project is expected to be completed in April 1996 at a total cost of $64.3 million.

Barbourville, Kentucky

Flood protection for Barbourville, Ky., consists of a high-flow diversion channel downstream of the city and raising the existing levee and floodwall. Engineering and design of the levee and floodwall is continuing; the Highway 459 bridge and closure structure and high-flow diversion channel are complete. Nonstructural measures, including floodproofing and evacuation, will be implemented outside the protected area. Work on raising the levee and floodwall, as well as nonstructural measures, will continue with funds provided through Fiscal Year 1990. However, no follow on funding is included in the Fiscal Year 1991 budget request.

Harlan, Kentucky

The Harlan, Ky., flood protection project includes a combination of levees, floodwalls, and stream diversions. A $28.8 million contract was awarded in September 1989 for the construction of four 35-foot diameter tunnels to divert stream flow around the Harlan Central Business District. The area downstream of the tunnels will be protected by a series of floodwalls and levees and diversion of the Cumberland River at Loyall, Ky. Nonstructural measures will also be implemented in those areas not protected. Work on the tunnels and other project features, including nonstructural measures will continue with funds provided through Fiscal Year 1990. However, no follow on funding is included in the Fiscal Year 1991 budget request.

Section 202 -- Other Detailed Studies

Work is progressing on detailed planning for Section 202 projects at Lower Mingo County, W.Va.; Levisa Fork River Basin in Kentucky, West Virginia and Virginia; Grundy, Va.; Williamsburg, Ky.; and Middlesboro, Ky. Detailed planning is also underway for other unincorporated areas in West Virginia and Kentucky. In response to the provisions of the Water Resources Development Act of 1986 which requires non-federal cost sharing for these projects, a variety of potential cost sharing arrangements are being discussed with potential local sponsors.

Stonewall Jackson Lake, West Virginia

Work remaining on the Stonewall Jackson Lake in West Virginia primarily involves the completion of cost-shared recreation facilities. However, such facilities are not scheduled pending agreement by the existing cost sharing partner to cost increases to the originally agreed upon recreation program. The $231 million project is 87 percent complete and all scheduled work is expected to be finished in March 1992.

Senecaville Lake, Ohio

Under the Dam Safety Assurance Program, construction of remedial measures at Senecaville Lake in Ohio is scheduled for initiation in July 1990.

OPERATIONS AND MAINTENANCE

The $170.615 million for the Operations and Maintenance Program is 47 percent of the total Ohio River Division budget.

Category	Extent
Locks	60
Waterways	2,582 miles
Lakes and Reservoirs	77
Local Protection Projects	6
Hydropower	9

Dashields Locks and Dam, Ohio River

A $25.9 million rehabilitation contract was awarded in September 1987 for modernization of the Dashields Locks and Dam project. The contract is 92 percent complete with project completion scheduled for December 1990. The rehabilitation contract included a new mechanical and electrical system, structural repairs, lock wall stabilization, operations and service buildings and a new access road.

Flood Damage Prevention

The American people have invested $3 billion in the Ohio River Basin's 77 flood control reservoirs and 89 local flood protection projects. These projects have prevented $9.4 billion in cumulative basin-wide flood damages, a return of $3.13 for every $1.00 invested. During Fiscal Year 1989, the reservoirs and local flood protection projects within the Ohio River Division prevented losses of over $300 million.

EMERGENCY OPERATIONS

Flooding was a problem in the Ohio River Division throughout the year. Several noteworthy flood events occurred in the Ohio River Division during Calendar Year 1989. There were five flood events that resulted in Presidential Disaster Declarations -- three in the Commonwealth of Kentucky, one in Ohio and one in Virginia. The Ohio River Division provided recovery support to three of these along with hazard mitigation studies for all five.

The event that generated the most damage in the division was the February 1989 flood in Kentucky. Flooding was widespread throughout the state and ranged up to the 50-year event at Frankfort. Damages were estimated at $20 million in the state with significant damages in the City of Frankfort. Twelve Corps reservoirs prevented losses of over $60 million for this flood.

Two major natural disasters occurred outside of the Ohio River Division in Calendar Year 1989 that resulted in significant recovery efforts by the division. First, Hurricane Hugo caused many fatalities and millions of dollars in damages to the Virgin Islands, Puerto Rico and North and South Carolina on September 12-22, 1989. Second, the Loma Prieta Earthquake that caused fatalities and extensive destruction to the San Francisco/Oakland, Ca., areas on October 17, 1989. The Ohio River Division provided 157 people or an equivalent of 13.4 full time employees to these recovery efforts. Twenty-six people were extended through January 1990 to continue critical emergency contract work in the Hugo and Loma Prieta Earthquake disaster area.

MOBILIZATION

Last summer, the inland waterways system demonstrated its value as a major mobilization resource when troops of the 101st Airborne Division became waterborne. Support equipment, mostly wheeled vehicles, traveled 1,700 miles roundtrip over six rivers from Fort Campbell, Ky., to Fort Chaffee, Ark., and Camp Gruber, Okla., for use in three weeks of joint readiness training exercises. It was the first use of the inland waterways system by the regular Army, and the biggest movement of military equipment since World War II. The exercise proved the efficiency of the waterways for large scale mobilization when movement of troops and equipment could clog the nation's roadways, air lanes, and railroads.

Overseas Deployment

Fort Campbell engineer units are currently utilizing an ocean-going barge to move equipment from their inland port on the Cumberland River to the Central American country of Belize. This move through the Tennessee-Tombigbee waterway system to Mobile and on to the foreign port has significant implications on future mobilization.

MAXWELL LOCKS AND DAM ACCIDENT, MONONGAHELA RIVER

In the early hours of New Years Day, 37 loaded coal barges broke loose from a fleeting area one and one-half miles above Maxwell Locks and Dam on the Monongahela River in Pennsylvania. One barge sank a half mile above the dam and two of the barges went through the dam and sank downstream. The remaining 34 barges came to rest at the dam. Fortunately, four of the five dam gates remained operational. Gate #2 was held open 11 feet by the corner of one barge. In order to remove the barge and close the gate, it was necessary to lower the pool upstream of Maxwell Dam and equalize it with the downstream pool. The reduction was accomplished slowly over a seven day period to minimize potential for sloughing of saturated banks and the loss of a railroad track adjacent to the river. Temporary loss of navigation and adjustments to compensate for uncovered water intakes was unavoidable. The obstruction was removed on January 15 and the pool was restored two days later. All services are back to normal and salvage contractors, working for the barge owners, are removing the remaining barges.

This concludes my status report on the Ohio River Division.

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991
SUMMARY OHIO RIVER DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
General Investigations			
Surveys	5,589,000	4,686,000	-903,000
Preconstruction Engineering and Design	5,468,000	9,044,000	+3,576,000
Construction, General			
Construction	199,226,000	177,921,000	-21,305,000
Operation and Maintenance, General			
Project Operation and Maintenance	166,300,000	170,615,000	+4,315,000
Total	376,583,000	362,266,000	-14,317,000

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29 JAN 1990

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
1. SURVEYS--New--None.					
2. SURVEYS--Continuing					

a. Navigation Studies: The amount of $2,035,000 is requested to complete two reconnaissance phase studies and continue two feasibility phase studies during FY 1991. The tentative allocations are as follows:

INDIANA					
Jeffersonville, IN	250,000	0	123,000	127,000	0

Jeffersonville, Indiana is located in Clark County along the Ohio River immediately across from Louisville, Kentucky and just upstream of McAlpine Locks and Dam. The proposed study area is located at river mile 603.5. Local interests have expressed an interest in development of a boat marina along their waterfront. The improvements, would include bank stabilization, parking, a boat ramp, picnic facilities, road improvements, utilities and boat mooring facilities. There is need for river access facilities in the Jeffersonville metropolitan area. Currently there are docking facilities at the site but they are in poor condition and cannot be improved until an ongoing bank erosion problem is corrected. The City of Jeffersonville is presently involved with several waterfront improvement projects on its riverfront. The addition of these access facilities would serve as a focal point for the economic development of their riverfront area.

FY 1990 funds will be used to initiate the reconnaissance stage of study at full Federal expense. FY 1991 funds will be used to complete the reconnaissance study. The reconnaissance phase of study is scheduled for completion in March 1991.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: (cont'd)					
KENTUCKY					
Cumberland-Tennessee Rivers, AL, GA, KY, MS, NC, TN, and VA	12,665,000	7,515,000	856,000	1,008,000	3,286,000

The study area includes both the Tennessee River and the Cumberland River Basins. The Tennessee River Basin contains a total of 40,910 square miles and includes portions of seven states. The Tennessee River is formed at the juncture of the Holston and French Broad Rivers just above Knoxville, Tennessee and flows 652 miles to the Ohio River at Paducah, Kentucky. The Cumberland River Basin contains a total of 17,914 square miles including portions of two states. The Cumberland River is formed at the juncture of Poor and Clover Forks near Harlan, Kentucky and flows 694 miles to the Ohio River at Smithland, Kentucky. The purpose of this study is to analyze navigation problems and to recommend possible solutions in the Tennessee-Cumberland Basins. To address increasing congestion in the Tennessee River navigation system, the Corps has the leading role in completing a system-based economic analysis to find viable solutions which produce national economic benefits through modernization of existing outdated locks. The Tennessee Valley Authority will assist the Corps effort by exploring the regional aspects of navigation problems and needs resolution, and by taking part in various technical analysis such as environmental and engineering investigations.

FY 1990 funds are being used to continue the Upper Tennessee Interim Navigation Study and to continue the Cumberland-Tennessee Rivers below Barkley Canal Interim. Current studies indicate that foundation conditions for a potential new lock at Kentucky Dam will be extremely difficult. The results of continuing subsurface investigations could impact the study schedule. FY 1991 funds will be used to complete the Cumberland-Tennessee Rivers below Barkley Canal Study and continue the Upper Tennessee Interim Study.

The study cost estimate increased $100,000 due to salary increases. The study report of the Division Engineer is scheduled for completion in September 1994. Interim reports are scheduled for April 1991 for the Cumberland-Tennessee Rivers below Barkley Canal Interim, and September 1994 for the Upper Tennessee River Interim.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: (cont'd)					
KENTUCKY					
Uniontown Locks and Dam, KY	5,000,000	0	550,000	250,000	4,200,000

Uniontown Locks and Dam is located on the Ohio River near Uniontown, Kentucky, 845.9 miles downstream of Pittsburgh, Pennsylvania. The existing project was authorized as a replacement for Locks and dams 47, 48, and 49 on 17 September 1958 by the Secretary of the Army under authority of Section 6 of the River and Harbor Act approved 3 March 1909, as amended. Two adjacent parallel lock chambers are located along the right bank (Indiana side) of the Ohio River, the main lock chamber having dimensions of 110 x 1200 feet and the auxiliary lock 110 x 600 feet. Ohio River tonnage increased 4.1 percent between 1986 and 1987 to a level of approximately 229 million tons. The Uniontown project passed 70 million tons in 1987 or about 31 percent of the Ohio River System total and experiences an average delay time of about 28 minutes per tow. By the year 2000 the project will be over 30 years old, and is expected to pass 82 million tons. Current traffic levels already exceed the capacity of the auxiliary lock. As the project ages, maintenance closures of the main chamber increase in frequency, and traffic continues to grow, disruptions and delays will increase in significance as determinants of waterway operating costs. Maintenance of the system is critical to avoid disruption and delays in the flow of commerce through the region.

FY 1990 funds will be used to initiate the reconnaissance phase of study at full Federal expense. FY 1991 funds will be used to complete the reconnaissance phase of study. The reconnaissance phase of study is scheduled for completion in March 1991. The feasibility phase of study is scheduled for completion in March 1995.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: (cont'd)					
WEST VIRGINIA					
Kanawha River Navigation Study, WV	7,785,000	5,411,000	612,000	650,000	1,112,000

The Kanawha River, a tributary of the Ohio River, has a total drainage area of about 12,300 square miles within southern West Virginia, southwestern Virginia, and a small portion of northwestern North Carolina. The Kanawha River is formed by the junction of the New and Gauley Rivers and flows 97 miles in a northwesterly direction entering the Ohio River, 266 miles downstream from Pittsburgh, Pennsylvania. A nine-foot navigation channel is maintained along the lower 91 miles by Winfield, Marmet and London Locks and Dams on the Kanawha, and Gallipolis Locks and Dam on the Ohio River. These projects, now 50 years old, have small dual-chambered 360 foot by 56 foot locks which severely restrict the use of modern, efficient towing equipment in transporting the approximately 19 million tons of traffic that use the Kanawha River. The interim report on Winfield L&D was completed in 1986, and a new 800 foot by 110 foot lock has been authorized for construction at Winfield. Lockage delays have significantly increased at Marmet L&D and serious congestion problems are expected by the year 2000. Means of providing additional lockage capability are being investigated at Marmet L&D.

FY 1990 and 1991 funds will be used to continue the Marmet Interim L&D Replacement studies and conduct system analysis applicable to the London Interim study. Several alternatives for additional lockage capacity at the Marmet project site and a new locks and dam project are being investigated. The study cost estimate increased $1,470,000 due to the necessity to perform hydraulic modeling for the lock replacement alternatives at the existing site, to modify the design of the alternative plans as necessitated by the modeling, and to fully incorporate the results of the modeling into the interim report. Also, variations in alternative plans are being investigated as a means of mitigating the considerable social impacts that could result from Marmet lock replacement. New traffic projections are being developed for the Ohio River navigation system, and these forecasts are to be fully integrated into the economic system impact analysis for Marmet lock replacement. The study report of the Division Engineer is scheduled for completion in September 1993. Interim reports are scheduled for September 1992 for Marmet L&D and September 1993 for London L&D.

Total Navigation Studies	25,700,000	12,926,000	2,141,000	2,035,000	8,598,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: The amount of $2,551,000 is requested to complete four reconnaissance phase studies, initiate two and continue four feasibility phase studies. The tentative allocations are as follows:					
KENTUCKY					
Fishtrap Lake, KY	220,000	0	49,000	171,000	0

Fishtrap Lake is on Levisa Fork of Big Sandy River fifteen miles upstream from Pikeville in eastern Kentucky. The project purposes are flood reduction, low flow augmentation, fish and wildlife, and recreation. The project has proved to be very effective for damage reduction in the Levisa Fork and Big Sandy River valleys and along the Ohio River. Total damages prevented over the twenty-year project life are five times as great as project costs. Standard policies were followed during project development regarding road relocation and land acquisition. However, ongoing problems and complaints about relocated roads on the north side of the lake have persisted for 20 years. The public definitely links the road access problem to the development of the Fishtrap Lake project. Residents of the problem area and county officials are convinced that it was a mistake to abandon pre-project valley roads while providing relocation roads over the mountain.

A remedial project modification was authorized for preconstruction planning, engineering and design by the WRDA of 1986. A reconnaissance study is proposed to develop information about alternative solutions sufficient for discussions and negotiations on cost-sharing for remedial actions.

FY 1990 funds will be used to initiate a reconnaissance study at full Federal expense. Work efforts will concentrate on setting up a study team, coordination with appropriate agencies and public, conduct the baseline social, economic, and environmental studies, and determine social impacts. FY 1991 funds will be used to complete the reconnaissance phase study. The reconnaissance phase study is scheduled for completion in August 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
KENTUCKY					
Kentucky River and Tributaries, Jackson, Kentucky Interim	400,000	0	180,000	220,000	0

Jackson, Kentucky is located in Breathitt County on the North Fork of the Kentucky River about 45 river miles upstream from Beattyville and 305 miles above the confluence of the Kentucky River with the Ohio River. The population of Jackson increased 40 percent from 1970 to 1980 to 2,651. The 100 year frequency flood event at Jackson would result in over $3.4 million damage and affect some 300 structures. The drainage area above Jackson is 1,100 square miles with damage occurring at a 5 year frequency flood event. Local interests desire solutions to the continuing flood problems at Jackson with the most recent significant flood occurring in 1984 resulting in $1.4 million damage to over 200 structures. Likely solutions involved traditional structural and non-structural local flood protection measures. Letters from the Mayor of Jackson and the Breathitt County Judge/Executive advise of willingness to cost share the feasibility stage of study.

FY 1990 funds will be used to initiate the reconnaissance phase of the study at full Federal expense. FY 1991 funds will be used to complete the reconnaissance phase of the study. The reconnaissance study is scheduled for completion in July 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
KENTUCKY					
Licking River Basin, KY	2,000,000	200,000	600,000	100,000	1,100,000

The Licking River Basin, lies in eastern Kentucky, having a drainage area of 3,707 square miles. The basin is subject to average annual damages of $2.9 million per year, based on 1969 conditions of development. Salyersville, Morehead, Cynthiana, and 12 additional urban centers are subject to recurrent flood damages. Communities in the basin are also concerned about water supply, having experienced severe droughts in 1983, 1986, and 1988. Solutions to the water resource problems likely include traditional structural and nonstructural local flood protection measures and multipurpose storage projects. Local interests have proposed a system of 28 small to medium sized reservoirs on tributaries to the Licking River to address flood control and water supply needs in the region. The County Judge/Executives and Fiscal Courts of Pendleton, Bracken, and Harrison Counties have, by letters and resolutions, indicated support for the study and a willingness to cost-share the feasibility stage of study. Additional letters supporting the study have been received from the Cynthiana--Harrison County Chamber of Commerce, the Harrison County Industrial Foundation, the Kentucky Flood Control Advisory Commission, and the Bluegrass Area Development District. Hydrology, economic, and engineering studies will be extensive and complicated in order to evaluate all or a portion of the local proposed lake system, in addition to other reasonable alternative solutions. Coordination and negotiation for further feasibility phase studies will similarly be extensive and complicated due to the presence of some 24 individual political subdivisions.

FY 1990 funds will be used to complete the reconnaissance phase of the study. FY 1991 funds will be used to initiate the feasibility phase of study. The preliminary estimated cost of the feasibility phase is $2,400,000, which is to be shared on a 50-50 percent basis by the Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$3,200,000
Reconnaissance Phase (Federal)	800,000
Feasibility Phase (Federal)	1,200,000
Feasibility Phase (Non-Federal)	1,200,000

The reconnaissance phase is scheduled for completion in October 1990. The feasibility phase study is scheduled for completion in June 1994.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
KENTUCKY					
Metropolitan Louisville, KY	1,500,000	600,000	20,000	300,000	580,000

The Louisville Metropolitan Area consists of Jefferson (including the largest city in the state—Louisville), Bullitt, and Oldham Counties in Kentucky, and Clark, Floyd, and Harrison Counties in Indiana, covering a land area of 2,274 square miles. The 1980 population of 956,756 reflects a 5.5 percent increase over 1970. The initial focus will be on the Metropolitan Jefferson County area. The reconnaissance report may identify other Metropolitan areas which may warrant separate study and investigation. Local interests desire a comprehensive analysis of flood problems and coordinated solutions to the flooding problems that persist along the North, Middle, and South Forks of Beargrass Creek, Pond Creek, and Floyds Ford which are major streams in the highly urbanized portions of the metropolitan area. Solutions will likely include combinations of traditional structural and nonstructural local protection project measures. The Metropolitan Sewer District, which maintains flooding and drainage responsibilities throughout Jefferson County has, by letter, indicated a willingness to cost-share the feasibility phase of study.

FY 1990 funds will be used to initiate the feasibility phase of study. FY 1991 funds will be used to continue the feasibility phase of study. The preliminary estimated cost of the feasibility phase is $1,800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,400,000
Reconnaissance Phase (Federal)	600,000
Feasibility Phase (Federal)	900,000
Feasibility Phase (Non-Federal)	900,000

The reconnaissance phase is scheduled for completion in July 1990. The feasibility study is scheduled for completion in September 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
KENTUCKY					
Ohio River Main Stem, KY, IL, IN, OH, PA and WV	18,320,000	15,244,000	599,000	1,065,000	1,412,000

The Ohio River Valley contains one-third of the Ohio Basin's population of about 25 million people. The system of navigation locks and dams along the river from Pittsburgh to Cairo is a vital artery for the flow of commercial products between the many industrial complexes in this basin and the rest of the nation. Many components of the system have provided service for over 50 years, and are reaching the end of their useful lives. Modernization of the system is critical to avoid disruption of the flow of commerce and costly stop-gap maintenance measures. The dam components of the navigation system are subject to increasing pressure by non-Federal interests for hydropower utilization. The cumulative impacts of non-Federal development on this important infrastructure have not been adequately investigated or documented. While the majority of major metropolitan areas in the valley are afforded flood protection by local protection projects as well as upstream basin reservoirs, an occurrence of a 100-year flood on the Ohio River Mainstem would inundate approximately 867,000 acres. This study will also update flood damage information and evaluate possible solutions for flooding problems in unprotected areas.

FY 1990 and 1991 funds will be used to continue priority emphasis on evaluation of the adequacy of existing navigation structures. System evaluations will continue to investigate long term modernization needs to ensure efficient navigation in an environment of increasing traffic, aging projects, and growing maintenance requirements. An interim study for modernization of Emsworth, Dashields, and Montgomery Island Locks and Dams on the Upper Ohio River will continue. In addition, efforts will continue on assessment of non-Federal hydropower impacts on the navigation system. The study cost estimate increased $280,000 for the Lower Ohio Interim due to the need to refine project cost estimates and to investigate economic losses to industry from lock maintenance closures. The study report of the Division Engineer is scheduled for completion in September 1995. The Interim Report on the Lower Ohio River will be completed in January 1990. An interim report for the Upper Ohio River Navigation Study is scheduled for completion in September 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
KENTUCKY					
Salt River Basin, KY	375,000	0	150,000	225,000	0

The Salt River basin drains 2,920 square miles in north-central Kentucky. The main stream originates in Boyle County and flows to the Ohio River at a point about 26 miles downstream from Louisville. Principal tributaries include Rolling Fork, Pond Creek, Floyds Fork, Brashears Creek, Beech Fork, and Chaplin River. The February 1989 flood resulted in damages exceeding $3.2 million, including urban damages at the communities of Boston, Lebanon Junction, New Haven, and Shepherdsville. Several counties were within the Presidentially declared disaster area. Local interests desire flood protection and opportunities exist for multi-purpose reservoir development to include municipal and industrial water supply and other project purposes. Non-Federal sponsorship would be expected to be provided by cities and county governments for local protection projects, with regional and state support potentially available for larger regional projects.

FY 1990 funds will be used to initiate the reconnaissance phase of the study at full federal expense. FY 1991 funds will be used to complete the reconnaissance phase of the study. The reconnaissance study is scheduled for completion in July 1991.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
MARYLAND					
Monongahela River Basin, MD, PA and WV	1,550,000	300,000	200,000	50,000	1,000,000

The Monongahela River Basin, which drains an area of about 7,400 square miles is located in Maryland, Pennsylvania, and West Virginia. The Monongahela River is formed by the junction of the Tygart and West Fork Rivers at Fairmont, West Virginia. The river flows in a northeasterly direction through northern West Virginia into southwestern Pennsylvania thence northerly to Pittsburgh, Pennsylvania where it joins the Allegheny River to form the Ohio River. The Monongahela River is canalized in its entirety. Federally constructed and operated reservoirs within the basin include Stonewall Jackson Lake, Tygart Lake, and Youghiogheny River Lake, which are operated for flood control and low water regulation. Major flooding within this basin during November 1985 stimulated renewed interest in pursuing flood control measures and a resolution adopted October 1, 1986 by the Committee on Public Works and Transportation of the United States House of Representatives called for a review of previous reports on the Monongahela River Basin, West Virginia and Pennsylvania to determine the advisability of improvements in the Basin in the interests of flood control and related purposes. The reconnaissance study will include preliminary investigations to examine the hydrologic and hydraulic aspects of the flooding problems in the basin, locate major damage centers and identify potential solutions such as local protection projects and reservoirs. It will also determine whether the planning should proceed further into the feasibility phase, based on a preliminary appraisal of the federal interest, cost, benefits and the environmental impacts of the identified potential solutions. The study will also assess the level of interest and support of non-Federal entities in the indicated potential solutions and will identify potential project sponsors who would be willing to share in the cost of the feasibility study.

FY 1990 funds are being used to complete the reconnaissance phase at full federal expense. FY 1991 funds will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $2,100,000, which is to be shared on a 50-50 percent basis by federal and nonfederal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,600,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	1,050,000
Feasibility Phase (Non-Federal)	1,050,000

The reconnaissance phase is scheduled for completion in May 1990. The feasibility study is scheduled for completion in September 1994.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
OHIO					
Metropolitan Cincinnati, OH	1,120,000	600,000	201,000	200,000	119,000

The Cincinnati metropolitan area is comprised of eight counties in southwest Ohio, northern Kentucky, and southeast Indiana. The 2,620 square mile area had a 1980 population of 1.7 million people. Some suburban counties have experienced as much as a 40 percent population increase over the past decade. Heavy, intense thunderstorms have focused attention on increasing urban runoff from developing suburban areas. The 100 incorporated cities in the eight county metropolitan area are experiencing increasing difficulties in coordinating planning effort to fully define the magnitude of the problems and they desire assistance in evaluation and implementation of solutions to the area's increasing flooding problems. The last comprehensive flood damage survey was accomplished in the early 1970's. The initial focus will be on the Hamilton County area. The reconnaissance report may identify other metropolitan areas which may warrant separate study and investigation. Nonfederal sponsorship is provided by Hamilton County with opportunities for other counties and cities in the metropolitan area to participate as problems and solutions are defined.

FY 1990 funds will be used to initiate the feasibility phase of study for a flood control project on Duck and Little Duck Creeks, Hamilton County, Ohio. FY 1991 funds will be used to continue feasibility efforts. The preliminary estimated cost of the feasibility phase is $1,040,000 which is to be cost-shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost is as follows:

Total Estimated Study Cost	$1,640,000
Reconnaissance Phase (Federal)	600,000
Feasibility Phase (Federal)	520,000
Feasibility Phase (Non-Federal)	520,000

The reconnaissance study was completed in September 1989. The feasibility study is scheduled for completion in June 1992.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
OHIO					
Trumbull County, OH	350,000	0	110,000	40,000	200,000

Trumbull County, Ohio, which lies within the Mahoning River Basin portion of the Beaver River Basin is concerned with the lack of available sources for water supply. Geographic patterns of demand for water for industrial, commercial and residential uses are changing rapidly and projections of future growth are likewise affected. This has prompted County Officials to actively seek the development of new, currently unused sources. An inventory of existing water related resources, water demand projections and preliminary surveys of reallocation opportunities at the four Federal reservoir projects in the area will be expanded and integrated into this basin-wide investigation which is intended to outline potential strategies to enhance the water supply potential of the Mahoning River Basin. The most likely local sponsor to fulfill the cost sharing requirements during the subsequent feasibility and construction phases would be Trumbull County and possibly local communities that would benefit from the assured water supply. Preliminary discussions have been conducted with the County relative to these requirements and they have expressed interest in and support for the study.

FY 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. FY 1991 funds will be used to complete the reconnaissance phase of the study. The preliminary estimated cost of the feasibility phase is $400,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$500,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	200,000
Feasibility Phase (Non-Federal)	200,000

The reconnaissance phase is scheduled for completion in March 1991. The feasibility study is scheduled for completion in March 1993.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: (cont'd)					
WEST VIRGINIA					
Little Kanawha River Basin, WV	1,100,000	350,000	43,000	180,000	527,000

The Little Kanawha River Basin, lying entirely within West Virginia, comprises the major portions of seven counties in the central portion of the state. The river flows in a northwesterly direction for a distance of 167 miles to the Ohio River and has a watershed area of approximately 2,320 square miles. In 1986, the 7-county area had an estimated population of 158,000. A number of commercially important towns and villages serving the region are located along the mainstem of the river, including Glenville, Grantsville, Elizabeth, Sand Fork, Creston and Parkersburg. Extensive portions of the river basin were declared a Federal disaster area after the November 1985 flood. Approximately 710 houses and 117 businesses were destroyed or damaged in the 1985 flood. The total damages associated with this event were estimated to be about $32,500,000. Consequently, local and regional interests desire a comprehensive area planning effort to define and evaluate potential solutions to the area's flooding problems. The State of West Virginia has indicated a willingness to cost share the feasibility phase of the study if results of the reconnaissance phase are positive and support proceeding with further study. The preliminary cost estimate for this feasibility study phase is $1,500,000 which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests.

FY 1990 funds will be used to initiate the feasibility phase of study and FY 1991 funds will continue this effort.

Total Estimated Study Cost	$1,850,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in April 1990. The feasibility phase is scheduled for completion in September 1993.

Total Flood Damage Prevention Studies	26,935,000	17,294,000	2,152,000	2,551,000	4,938,000

c. Shoreline Protection Studies: None.

d. Special Studies: None.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
e. Comprehensive Studies: The amount of $100,000 is requested to initiate one feasibility phase study during FY 1991. The tentative allocation is as follows:					
- INDIANA					
Wabash River Basin Comprehensive, IN and IL--Middle Reaches Interim Study	790,000	290,000	200,000	100,000	200,000

The Wabash River - Middle Reaches study area lies in west-central Indiana along the Indiana-Illinois border and includes the Wabash River from Sullivan County to Tippecanoe County, and adjacent counties to the east. Major urban areas on the Wabash River in this reach include Terre Haute, Clinton, Attica, Lafayette, and West Lafayette and the urban fringe of Indianapolis. Average annual flood damages in the study area are estimated at $4,800,000. The study will address urban and rural flood damage reduction and bank erosion control measures throughout the 14-county study area. Reconnaissance phase studies investigated a broad range of flooding problems throughout the study area. Studies on Lost Creek in Terre Haute identified a feasible channel enlargement project, continuation of which can be pursued under the Corp's Continuing Authority-Small Project program, pending receipt of a letter of intent from local interests. Additional reconnaissance phase studies were completed which addressed flooding and drainage problems on Honey Creek at Terre Haute and a multipurpose reservoir on Bosseron Creek in Sullivan County, IN. These latter two studies provided engineering and economic technical data to local interests.

FY 1990 funds will be used to initiate and complete an additional reconnaissance study oriented toward identifying further urban flood problem areas and evaluating the adequacy of existing agricultural levees. Reconnaissance studies will be completed at full Federal expense. FY 1991 funds will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $600,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing follows:

Total Estimated Study Cost	$1,090,000
Reconnaissance Phase (Federal)	490,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (Non-Federal)	300,000

The reconnaissance phase is scheduled for completion in March 1991. The feasibility study is scheduled for completion in December 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
e. Comprehensive Studies: (cont'd)					
Total Comprehensive Studies	790,000	290,000	200,000	100,000	200,000
Total Surveys-Continuing	53,425,000	30,510,000	4,493,000	4,686,000	13,736,000

3. Preconstruction Engineering and Design Activities (PED)—New

a. Navigation: The amount of $900,000 is requested to initiate one PED activity in FY 1991. The tentative allocation is as follows.

PENNSYLVANIA					
Locks and Dams 3 and 4, Monongahela River, PA	6,000,000	0	0	900,000	5,100,000

The proposed replacement for existing Monongahela River Locks and Dams 3 and 4 would be located in Allegheny County, Pennsylvania at Monongahela River Mile 34 as being recommended in a feasibility report scheduled to be completed in FY 1990. This project would consist of two 84 ft. by 720 ft. locks adjacent to the right descending river bank and a moveable crest dam. The proposed project would replace existing Locks and Dam No. 3 at river mile 23.8 and Locks and Dam No. 4 at river mile 41.5. The existing structure at Locks and Dam No. 3 is over 80 years old and is the oldest navigation facility currently operating on the inland waterways. Although it has received continual repairs and a recent major rehabilitation, it displays every indication of seriously deteriorated condition and stability problems. Existing Locks No. 4 are nearly 60 years old, while the newer moveable crest dam was completed in 1967. The locks are exhibiting problems indicative of deteriorated conditions presently being investigated to determine if there are any stability problems. The existing locks at both sites are 56 ft. wide by 720 ft. and 360 ft. long and are considerably narrower than facilities immediately down river and in the upper river area. Commercial tows passing thru this river reach are forced to break up and require additional towboats because of this restrictive lock width. The projected increases in waterway tonnage will result in even more time consuming and costly shuttle movements through this river segment in the near future. The proposed facilities will provide for more efficient and uninterrupted waterway traffic movement that is highly important in normal time with the importance greatly increased in times of national emergencies. The October 1989 estimated project cost is $425,000,000 ($550,000,000 fully funded) with average annual benefits of $314,000,000 attributable to navigation. The benefit to cost ratio is 5.8 to 1 at an 8-7/8 percent interest rate.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: Locks and Dams 3 and 4, Monongahela River, PA (cont'd)					
The proposed project has not yet been authorized, however, the feasibility report is recommending 50 percent cost sharing through the Inland Waterways Trust Fund.					
FY 1991 funds would be used to initiate the General Design Memorandum. The reminder of the PED funds will be used to complete the General Design Memorandum and to develop the Feature Design Memorandum and the Plans and Specifications for the first item of construction. Completion of PED efforts is scheduled in June 1994.					
Total Navigation--New	6,000,000	0	0	900,000	5,100,000
b. Flood Control: None					
Total PED--New	6,000,000	0	0	900,000	5,100,000

4. Preconstruction Engineering and Design Activities (PED)--Continuing

a. Navigation: The amount of $4,532,000 is requested to continue one and complete one PED activity in FY 1991. The tentative allocations are as follows:

KENTUCKY					
McAlpine Locks and Dam, IN and KY	7,350,000	0	150,000	1,000,000	6,200,000

McAlpine Locks and Dam is located on the Ohio River 606.8 miles below Pittsburgh, Pennsylvania, at Louisville, Kentucky. The present navigation locks are on the Kentucky side of the river, and they consist of a 1200 foot main lock placed in operation in 1961 and two auxiliary locks which were completed in 1921 (110 foot x 600 foot) and 1930 (56 foot x 360 foot - closed since 1971). A proposed modernization of the existing facility would replace the existing 110 foot x 600 foot lock with a new 110 foot x 1200 foot lock as being recommended in a feasibility report scheduled to be completed in FY 1990. Tonnages through the McAlpine Locks are expected to grow annually from the 1986 figure of 53.6 million tons to 141.6 million tons by 2050. These tonnage projections indicate that McAlpine locks represent the next potential traffic bottleneck in the mainstem Ohio River system following Gallipolis and Olmsted. The need for a new lock is in response to identified annual increases in tonnage levels and delays. About 55 percent

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: McAlpine Locks and Dam, IN and KY (cont'd)					

of present traffic is coal. The October 1989 estimated project cost is $219,400,000 ($265,000,000 fully funded) with average annual benefits of $30,700,000 (1987 price levels) attributable to navigation. The benefit to cost ratio is 1.7 to 1 based on the interest rate of 8-7/8 percent.

The proposed replacement project is not yet authorized, however, the feasibility report is recommending 50 percent cost sharing through the Inland Waterways Trust Fund.

FY 1990 funds would be used to begin the General Design Memorandum, foundation explorations, and a WES model study. FY 1991 funds would be used to continue the General Design Memorandum, initiate the design memorandum for the Lock, and initiate and complete a design memorandum for Real Estate. PED is scheduled for completion in September 1994.

ILLINOIS					
Olmsted Locks and Dam, IL & KY	16,555,000	9,255,000	3,768,000	3,532,000	0

The new replacement structure for Ohio River Locks and Dams 52 and 53 is located in Pulaski County, Illinois and Ballard County, Kentucky on the Ohio River about 964.4 miles downstream from Pittsburgh, PA. The new structure would consist of two 110 foot by 1200 foot locks adjacent to the Illinois shore, and a dam comprised of six 110 foot tainter gates, a 1,125 foot wide navigable pass and 650 foot of fixed weir as recommended in a feasibility report completed in FY 1985. The project replaces two existing Ohio River Locks and Dams (#52 and #53) that are over 60 years old, including two temporary lock structures that do not conform to current design criteria for stability. Projected increases in waterway traffic demands in combination with the limited capacity of the existing locks will result in increased lockage delays. Commercial navigation on the lower Ohio River in 1988 was 83.5 million tons through Lock 52 and 76.0 million tons through Lock 53. The new facilities that would provide for efficient and uninterrupted river traffic are highly important in normal times and their importance is greatly increased in times of national emergencies. The October 1989 estimated project cost is $816,000,000 ($990,000,000 fully funded). The average annual benefits of $237,000,000 (1984 price levels) are attributable to navigation. The benefit-cost ratio is 1.7 to 1 at an 8-7/8 percent interest rate .

The project is authorized for construction by the Water Resources Development Act of 1988 with 50 percent cost sharing through the Inland Waterways Trust Fund.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: Olmsted Locks and Dam, IL and KY (cont'd)					

FY 1990 funds will be used to continue the WES model studies and prepare feature design memorandums for foundations, dam, locks, and an access road; complete the real estate memorandum for the project construction area; and the lock and corrosion feature design memorandum. FY 1991 funds will be used to prepare feature design memorandums for the lock and tainter gates, construction materials, and foundations; and prepare plans and specifications for the access road. PED is scheduled for completion in September 1991.

Total Navigation—Continuing	23,905,000	9,255,000	3,918,000	4,532,000	6,200,000

b. Flood Control: The amount of $3,612,000 is requested to continue seven and complete two PED activities in FY 1991. The tentative allocations are as follows:

KENTUCKY

Frankfort (South Frankfort), KY	1,342,000	1,009,000	181,000	152,000	0

The Kentucky River drains an area of about 6,966 square miles in the central part of Kentucky and empties into the Ohio River at Ohio River Mile 545.8. The South Frankfort flood plain encompasses about 117 acres of mostly residential property with a mixture of public and commercial properties valued at about $146 million (October 1989 prices) and is located on the left bank of the Kentucky River. The most damaging flood occurred in 1978 when the Kentucky River crested 18.5 feet above flood stage and remained above flood stage for 6 days. A recurrence of this flood level would cause an estimated $47 million in damages to South Frankfort at October 1989 price levels and conditions of development. The National Economic Development (NED) plan, called Plan K, estimated to cost $8,360,000 (October 1989 price levels) includes construction of a floodwall and pump plant and would provide protection to 370 properties in South Frankfort. The October 1989 cost estimate of the latest approved plan (Plan N) is $8,570,000 ($9,670,000 fully funded) with average annual flood control benefits of $924,000. The benefit to cost ratio would be 1.03 to 1 based on an interest rate of 8-7/8 percent.

The project is authorized for construction by the Flood Control Act of 1938. The local sponsor prefers a plan other than the NED plan and the latest approved plan that would protect 390 properties. The additional associated cost of this plan would be borne entirely by the local sponsor. The latest approved plan (Plan N) requires cost sharing in accordance with the Water Resources Development Act of 1986 as follows: Local interests will be required to provide

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: Frankfort (South Frankfort), KY (cont'd)					

all lands, easements, and rights-of-way presently estimated at $370,300; modify or relocate buildings, utilities, roads and other facilities where necessary in the construction of the project presently estimated at $282,600; make a cash contribution presently estimated at $1,487,100 so that the total contributions of local interests is equal to 25 percent of the costs allocated to flood control; and bear all costs of operation and maintenance, and replacement of flood control facilities presently estimated at $4,000 annually. The local sponsor, the City of Frankfort, by letter dated May 8, 1989, has indicated its willingness to cost share the project.

FY 1990 funds will be used to initiate and complete a Reevaluation Report and a Feature Design Memorandum for the Pump Plant. FY 1991 funds will be used to complete the Local Cost Sharing Agreements and Plans and Specifications for the first construction contract. PED studies are scheduled for completion in September 1991.

KENTUCKY					
Hazard, KY	1,000,000	0	93,000	200,000	707,000

The City of Hazard is located in Perry County in southeastern Kentucky. The project is a 5.9 mile reach of the North Fork Kentucky River. The drainage area above Hazard is 466 square miles. The May 1984 flood resulted in $10,000,000 damage, with a history of larger floods occurring in 1963 and 1957. A recurrence of these floods would cause flood damages of $11,000,000, $27,800,000, and $50,700,000 (October 1989 price levels), respectively. A feasibility report was completed in 1985. The recommended project, estimated to cost $9,170,000 includes 5.9 miles of channel improvement along the North Fork Kentucky River. The plan would reduce average annual flood damages by about 44 percent, benefiting 770 property units. Average annual urban flood control benefits total $1,250,000, annually. The benefit to cost ratio is 1.3 to 1 based on an interest rate of 8-7/8 percent.

The project authorized for construction by the Water Resources Development Act of 1988. Consistent with the cost sharing and financing concepts contained in the Water Resources Development Act of 1986, local interests will be required to provide all lands, easements, and rights-of-way presently estimated at $920,000; modify or relocate buildings, utilities, roads and other facilities where necessary in the construction of the project presently estimated at $163,200; make a cash contribution presently estimated at $996,800 so that the total contribution of local interests is equal to 25 percent of the costs allocated to flood control; and bear all costs of operation and maintenance, and replacement of flood control facilities presently estimated at $4,000 annually. The local sponsor, the City of Hazard, by letter dated December 1983, has indicated its willingness to cost share the project.

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Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: Hazard, KY (cont'd)					

FY 1990 funds will be used to initiate the General Design Memorandum. FY 1991 funds will be used to continue the General Design Memorandum and prepare a draft Local Cost Sharing Agreement. PED studies are scheduled for completion in September 1993.

OHIO

Fairfield, OH	1,359,000	1,209,000	0	150,000	0

Pleasant Run Creek drains an area of about 10.6 square miles in south-central Butler County, Ohio and empties into the Great Miami River. The Pleasant Run Creek flood plain encompasses about 876 acres of mostly residential development with a mixture of residential and commercial properties. The maximum flood of record, that of August 1979, caused an estimated $3,620,000 in damages (October 1989 prices levels and October 1980 development). A feasibility report was completed in FY 1982. The recommended project, estimated to cost $16,610,000, ($18,170,000 fully funded), includes construction of three dry bed reservoirs, 0.83 miles of channel improvement, and recreational development at each of the three reservoirs. The average annual benefits amount to $2,919,000 of which $2,256,000 is for flood control and $663,000 is for recreation. The benefit to cost ratio is 1.4 based on an interest of 8 7/8 percent.

The project was authorized for construction by the Water Resources Development Act of 1986 and consistent with the cost sharing and financing concepts contained therein, the local interests will be required to provide $3,634,800 for lands, easements, and rights-of-way; $1,243,000 for relocations to buildings, utilities, and roads; pay one-half of the separable and joint costs allocated to recreation, presently estimated at $661,500; pay 5 percent of the costs allocated to flood control, presently estimated at $764,000; and bear all costs of operation, maintenance, and replacement of all flood control and recreation facilities, presently estimated at $130,000 annually. The local sponsors, the Pleasant Run Watershed Subdistrict of the Miami Conservancy District and the City of Fairfield, by letter dated April 1989, have indicated their willingness to cost share the project.

FY 1991 funds will be used to complete Local Cost Sharing Assurance Agreements, Right-of-Way drawings, and Plans and Specifications for the first item of construction consisting of a Channel modification. The scheduled completion date for Preconstuction Engineering and Design is September 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (cont'd)					
OHIO					
Holes Creek at West Carrollton, OH	770,000	383,000	0	100,000	287,000

The project area is located in south-central part of Montgomery County, except for the headwaters of Holes Creek, which extend southward into Warren County. Flooding along areas of Holes Creek resulted in requests from local officials for Federal assistance. The major features of the authorized plan (Plan C) consist of trapezoidal channels, replacement of a Conrail Railroad bridge, the taking of three commercial structures, and recreational facilities. A plan (called Plan G in the Draft Reevaluation Report) currently being formulated is based on the determination that there exist certain changed conditions in the project area from that reported in the Miami River, Little Miami River, Interim Report No. 2, West Carrollton, Holes Creek, Ohio from which Congress authorized Plan C for construction. The tentatively recommended project, estimated to cost $2,650,000 ($2,875,000 fully funded) is a 100-year protection channel improvement plan, involving 4,650 feet of channel, modification of the existing railroad bridge, and recreational facilities, is believed to be consistent with these changed conditions. The average annual benefits amount to $293,000 for flood control and $127,000 for recreation. The benefit-cost ratio is 1.4 to 1, based on an 8-7/8 percent interest rate.

The project is authorized for construction by the Water Resources Development Act of 1986 and consistent with the cost sharing and financing concepts contained therein, local interests will be required to provide $548,000 for lands, easements and rights-of-way; $158,000 to modify an existing railroad bridge; pay one-half of the separable costs allocated to recreation presently estimated at $292,000; pay 5 percent of the cost allocated to flood control presently estimated at $102,000; and bear all costs of operation, maintenance, and major replacement of the project facilities, presently estimated at $28,000 annually. The local sponsor, the Miami Conservancy District, by letter dated 19 January 1989, has indicated its willingness to cost share the project.

In FY 1990, work on the General Design Memorandum and foundation studies will continue. FY 1991 funds will be used to complete the General Design Memorandum and foundation studies; and prepare a draft Local Cost Sharing Agreement. The PED effort is scheduled for completion in September 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (Cont'd)					
OHIO					
West Columbus LPP, Ohio	3,300,000	278,000	599,000	1,400,000	1,023,000

The project consists of flood protection for West Columbus, Ohio. A feasibility report was completed in FY 1987. The local protection project would be for the Standard Project Flood level for the area bounded by the Scioto River on the north and east and Interstate 70 on the south and west. The protected area contains about 1,200 acres and is completely urban, with a mix of residential, industrial, and commercial development. The flood protection project, estimated to cost $34,000,000, ($40,700,000 fully funded) consists of a combination of 3.3 miles of floodwall and levee, 17 gate closures, interior drainage facilities, and 3 pump stations. Flooding of West Columbus occurs from the Scioto River and one of its major tributaries, the Olentangy River, which has its confluence opposite West Columbus at mid-project. The maximum flood of record occurred in March 1913, while the second most severe flood at Columbus occurred in January 1959. A recurrence of these floods would cause damages of $283,000,000 and $239,000,000 respectively. Average annual benefits, all flood control, total $11,203,000. The benefit-cost ratio is 3.4 to 1 at an 8-7/8 percent interest rate.

The project is authorized for construction by the Water Resources Development Act of 1988 and consistent with the cost sharing and financing concepts contained in the Water Resources Development Act of 1986, local interests will be required to provide all lands, easements, and rights-of-way presently estimated at $355,000; modify or relocate buildings, utilities, roads and other facilities where necessary in construction of the project, presently estimated at $2,370,000; make a cash contribution presently estimated at $5,765,000 so that the total contribution of local interests is equal to 25 percent of the costs allocated to flood control; and bear all costs of operation, maintenance and replacement of the flood control facilities presently estimated at $95,000 annually.

The local sponsor, the City of Columbus, by Ordinance No. 477-89 dated February 27, 1989, authorized the Director of Public Utilities and Aviation to enter into an agreement to provide a portion of its cost sharing requirements early to advance design through a Memorandum of Understanding (M.O.U.). In FY 1989 the City provided $997,000. In FY 1990, funds are being provided by a combination of Federal and City allocation.

FY 1990 funds will be used to continue a re-evaluation of project alternatives to insure the most appropriate project development. During this effort, reconsideration will be given to levels of flood protection other than the authorized plan. FY 1991 funds will be used to complete the project re-evaluation and initiate detailed engineering and design. PED is scheduled for completion in September 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (cont'd)					
PENNSYLVANIA					
Saw Mill Run, PA	1,100,000	286,000	286,000	310,000	218,000

Saw Mill Run drains an area of 19.4 square miles within Allegheny County, Pennsylvania with the lower 50 percent located within the Pittsburgh city limits. The topography is hilly and the flood plain is narrow with about 75 percent of the basin in urban development. A feasibility report was completed in FY 1977. The recommended project, estimated to cost $8,560,000 ($9,500,000 fully funded) would consist of deepening and minor realignment of approximately 5,600 feet of the Saw Mill Run channel through the heavily developed West End section of the City of Pittsburgh. The project would provide protection against a flood with an average recurrence interval of 50 years. The average annual benefits are $993,500 which are all urban flood control. The benefit-to-cost ratio is 1.14 based on an 8-7/8 percent interest rate.

The project is authorized for construction by the Water Resources Development Act of 1986 and consistent with the cost sharing and financing concepts contained therein, local interests will be required to provide lands, easements, and rights-of-way, relocations and disposal areas, presently estimated at $350,000, and to share in the cost of the construction of the project in the estimated amount of $1,790,000 to bring the total non-Federal share of flood control costs to 25 percent. The project sponsor must also bear all costs of operation, maintenance and replacements of the completed project, currently estimated at $35,000 annually. The City of Pittsburgh, by letter dated April 20, 1987, has indicated that they strongly support this project and they intend to provide the necessary cost sharing in accordance with the provisions of the project's authorization.

FY 1990 funds will be used to complete the project reaffirmation to insure the most appropriate project development. During this work, reconsideration will be given to levels of flood protection other than that authorized; such as the National Economic Development Plan with an estimated cost of $5,953,000. The average annual benefits are $858,000 which results in a benefit to cost ratio of 1.4 to 1. FY 1991 funds will be used to initiate and complete a detailed design analysis and report. PED is scheduled for completion in September 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (Cont'd)					
TENNESSEE					
Mill Creek, TN	1,010,000	0	160,000	400,000	450,000

Mill Creek drains about 108 square miles from its headwaters in Williamson County to its confluence with the Cumberland River in Nashville, Davidson County, Tennessee. The lower, heavily urbanized, portion of the basin suffered flood related losses in excess of $40 million during the 1979 flood of record. There are presently 1,102 floodprone structures with a flood loss potential of over $1.7 million annually. The feasibility report was completed in FY 1986. The recommended plan consists of constructing two dry-bed flood retarding reservoirs, one on Mill Creek and one on Sevenmile Creek, and widening a short section of lower Sevenmile Creek. The project is estimated to cost $14,500,000 ($16,000,000 fully funded). It would reduce potential average annual damages by 88 percent. Average annual flood control benefits total $2,000,000 and yield a benefit cost ratio of 1.5 to 1 based on an interest rate of 8-7/8 percent.

The project, not yet authorized, is subject to the cost sharing requirements of the Water Resources Development Act of 1986. Metro Nashville would be required to pay $7,171,000 for lands, easements, and rights-of-way; and $829,000 for relocation of roads and utilities necessary for project construction. This totals to a non-Federal expenditure for construction of $8,000,000 or a 50 percent contribution by the local sponsor. The non-Federal annual expenses for operation, maintenance, and replacement of flood control facilities are estimated at $46,000. The sponsor is financially capable of meeting cost sharing requirements and has indicated, by letter, March 2, 1988, its intent to fulfill the measures of local cooperation.

FY 1990 funds are being utilized to initiate the General Design Memorandum. Initial efforts will focus on reaffirmation of the currently recommended plan. FY 1991 funds will be used to complete the General Design Memorandum and initiate plans and specifications with the total PED effort scheduled for completion in September 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Ohio River Division

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (Cont'd)					
WEST VIRGINIA					
Cabin Creek, LPP, WV	1,500,000	250,000	0	500,000	750,000

Cabin Creek enters the Kanawha River 74 miles above the Kanawha River's confluence with the Ohio River and 12 miles upstream from Charleston, West Virginia. Water resource development problems exist from both surface and underground mining. Both manmade and natural reclamation are occuring and streams that were grossly polluted by sediment and acid mine drainage are improving. Flooding is a chronic problem in the narrow valley, but other interrelated problems are lack of sewage treatment and solid waste management. A feasibility report was completed in FY 1977. The recommended plan estimated to cost $7,540,000 ($8,620,000 fully funded) was a demonstration reclamation project which had the traditional elements such as channel widening and realigning along 10.5 miles of Cabin Creek, development of flood plain management guidelines, and non-structural floodproofing measures. The benefit-cost ratio was not applicable when this project was formulated, so the project is being reevaluated for flood control only. This reevaluation must contain a flood control project with a feasible benefit-cost ratio. There is a strong probability that a project is implementable.

The project was authorized for construction by the Water Resources Development Act of 1986 consistent with the cost sharing and financing concepts contained therein. Local interest will be required to provide all lands, easements, rights-of-way, and dredged disposal areas required for flood control and perform all modification or relocation of buildings, utilities, roads and other facilities where necessary in construction of the project and is presently estimated at $3,060,000; make a 5 percent cash contribution of the total project cost and is presently estimated at $340,000; and bear all cost of operation, maintenance and replacement of the flood control facilities presently estimated to be $60,000 annually. The County Commission of Kanawha County and the State of West Virginia have indicated their interest as non-Federal sponsors of the project.

PED efforts will focus on reevaluating the authorized project. The reevaluation study will be completed in FY 1990 with available funds. FY 1991 funds would be used to prepare the General Design Memorandum and initiate foundation studies. The PED effort is scheduled for completion in September 1993.

Project	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (cont'd)					
WEST VIRGINIA					
Island Creek at Logan, WV	1,600,000	191,000	171,000	400,000	838,000

The Island Creek Basin is a sub-basin of the Guyandotte River and is located in Logan County, near the City of Logan, in the southern coal mining region of West Virginia. A 100-year flood would damage 1,626 residential structures and 248 non-residential structures, or a total of 1,874 structures. Damages resulting from the occurrence of a flood of this magnitude are estimated to be in excess of $57 million. The study area has experienced significant flooding as recently as May 1984, when approximately $4 million in damages occurred. A feasibility report was completed in FY 1985. The authorized project, estimated to cost $96,000,000 ($116,000,000 fully funded) consists of both structural and nonstructural measures including the raising-in-place of over 1200 homes. Average annual flood control benefits amount to $7.3 million. The benefit cost ratio is 1.6 to 1 based on an 8-7/8 percent interest rate. Costs to raise structures as a means of flood proofing have proven to be much higher than originally estimated for the authorized project. A reevaluation study anticipates that raising in place will no longer be a feasible component of the plan; and that a variation of the structural portion will become the NED plan.

The project was authorized for construction by the Water Resource Development Act of 1986 and consistent with the cost sharing and financing concepts contained therein, local interests will be required to provide a cash contribution, presently estimated at $423,000 (which is 5 percent of the cost for flood control); provide all lands, easements, rights-of-way, and dredged disposal areas required for flood control and perform all necessary relocations, presently estimated at $3,809,000; provide 25 percent of the share of construction costs for the non-structural floodproofing, presently estimated at $20,159,000; and bear all costs of operation, maintenance and replacement of the flood control facilities presently estimated at $84,000 annually. The Logan County Commission has indicated their continued support through a letter of intent dated February 5, 1985.

FY 1990 and FY 1991 funds will be used to continue work on the reevaluation study of the authorized plan, including economic reevaluation and affirmation of the NED level of development. Preconstruction engineering and design is scheduled to be completed in September 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Ohio River Division

	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (cont'd)					
Total Flood Control - Continuing	12,981,000	3,606,000	1,490,000	3,612,000	4,273,000
Total PED - Continuing	36,886,000	12,861,000	5,408,000	8,144,000	10,473,000
GRAND TOTAL - Surveys and PED Activities	96,311,000	43,371,000	9,901,000	13,730,000	29,309,000

536

29 JAN 1990

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Grays Landing Lock and Dam (Lock and Dam 7), Monongahela River, Pennsylvania (Continuing)

LOCATION: Lock and Dam 7 is located on the left bank of the Monongahela River, 85.0 miles above the mouth of the river at Pittsburgh, Pennsylvania. The site of the proposed lock and dam is on the Monongahela River, 82.0 miles above its mouth at Pittsburgh, Pennsylvania and is in Fayette and Greene Counties, Pennsylvania.

DESCRIPTION: The project will consist of the replacement of the exiting 56' x 360' lock and fixed crest dam with a modern 84' x 720' lock and a non-navigable, fixed crest dam.

AUTHORIZATION: Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986 for Construction.

REMAINING BENEFIT-REMAINING COST RATIO: The benefit to cost ratio is 3.3 to 1 at 8-1/8 percent. The benefit to cost ratio is based on the replacement projects, Grays Landing Lock and Dam for Lock and Dam 7, and the Point Marion Lock for Lock 8, being in place.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 8-1/8 percent (FY 1985).

INITIAL BENEFIT-COST RATIO: 4.1 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENIFIT-COST RATIO: Based upon Feasibility Study, Monongahela River Navigation System, Locks and Dams 7 and 8, dated January 1984 with costs at 1 Oct 1983 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$168,000,000
General Appropriations	$84,000,000	
Inland Waterways Trust Fund	84,000,000	
Estimated Non-Federal Cost		2,245,000
Other Costs	2,245,000	
Total Estimated Project Cost		$170,245,000

SUMMARIZED FINANCIAL DATA: (cont'd)

	General Appropriations	Inland Waterways Trust Fund	Percentage of Estimated Federal Cost
Allocations to 30 September 1989	$13,323,000	$13,323,000	
Conference Allowance for FY 1990	12,800,000	12,800,000	
Allocation for FY 1990	11,067,000 1/	11,067,000 2/	
Allocations through FY 1990	37,890,000	37,890,000	45
Allocation Requested for FY 1991	15,500,000	15,500,000	18
Scheduled Balance to Complete after FY 1991	30,610,000	30,610,000	
Unscheduled Balance to Complete after FY 1991	0	0	

1/ FY 1990 allocation reflects $1,235,000 reduction assigned as savings and slippage, $131,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $367,000 additional amount reprogrammed from the project.

2/ FY 1990 allocation reflects $1,234,000 reduction assigned as savings and slippage, $132,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $367,000 additional amount reprogrammed from the project.

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	17	Aug 1995

PHYSICAL DATA

Lock: Single Lock Chamber 84 feet wide x 720 feet long. Dam: Fixed Crest Concrete Gravity Dam, 576 feet long.

Lift: 15 feet, existing Maxwell pool at elev. 763.0 would be shortened by 3 miles. Existing pool 7 at elev. 778.0 would be extended down river to the new dam.

Lands and Damages:
Fee - 83.22 Acres
Road Easements - 15.61 Acres
Flowage Easements - 412 Acres
Disposal - Temporary Work Area Easements - 117.38 Acres
Type: Lock Site - residential and industrial
Pool Area - riverbank and creek bottom

Division: Ohio River District: Pittsburgh

Grays Landing Lock and Dam
(Lock & Dam 7), Monongahela River, PA

5938

JUSTIFICATION: Construction of the Grays Landing Lock and Dam is an integral part of the plan of improvement of the Monongahela River for orderly replacement of old and obsolete navigation facilities. Lock and Dam 7, which was constructed during the period 1923-1926, is near the end of its economic life and is obsolete. In addition to its overall deteriorated physical condition and poor operating condition, the existing 56' x 360' lock is inadequate to efficiently pass the present and prospective volume of traffic. Recent trends in the towing industry have been toward utilization of larger tows in line with the capacity provided by the new larger facilities on the upstream and downstream portions of the Monongahela River Navigation System. Passage of larger tows through Lock 7 requires that they be separated into segments that necessitate two or more lockages. This breaking up of tows results in costly delays and increases the possibility of accidents.

Since this lock structure was not designed to pass the present type of traffic and with the increasing volume of commerce adding to the problem every year, the structural deterioration is progressing at an accelerated rate. This will result, in the very near future, in numerous and severe breakdowns of the facility. The resulting interruptions to traffic to make such repairs will pyramid delays to navigation to the point of creating an intolerable condition.

The average annual navigation benefits of $62,400,000 were derived by determining the savings to shippers using the waterway and the estimated traffic that would use the waterway. To fully attain all of navigation's average annual benefits, the replacement of Lock and Dam 7 (Grays Landing Lock and Dam) and Lock 8 (Point Marion Lock) must be in place. Therefore, the benefits indicated are for both projects. The total average annual cost of $27,025,000 was calculated using a total cost of $223,500,000 for the replacement of both structures. Waterborne commerce passing through the Grays Landing Lock site is shown below:

YEAR	TONNAGE
1984	11,339,000
1985	9,833,000
1986	11,900,000
1987	13,300,000
1988	13,200,000
1989 (Projection)	13,000,000

539

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Land Acquisition	$ 1,000,000
Continue Relocations	500,000
Continue Construction of Lock	27,000,000
Engineering and Design	900,000
Supervision and Administration	1,000,000
Total	$31,000,000

The requested funds are required to continue project construction in the budget year.

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concept reflected in Water Resources Development Act of 1986, 50 percent of the total cost of construction will be derived from the Inland Waterways Trust Fund. Construction of the project will require modification of an existing coal loading dock which was originally constructed under Department of the Army permit pursuant to Section 10 of the River and Harbor Act approved 3 March 1899. The owners will adapt their facilities to new project conditions at an estimated cost of $2,245,000.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $168,000,000 remains unchanged from the previous estimate presented to Congress (FY 1989).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with the EPA on 3 August 1984.

OTHER INFORMATION: Funds for Engineering and Design were allocated in FY 1986 under the General Investigations appropriation. Funds to initiate Land Acquisition were allocated in FY 1986 under Construction, General Appropriation from funds previously appropriated.

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Point Marion Lock and Dam (Lock and Dam 8), Monongahela River, Pennsylvania and West Virginia

LOCATION: Lock and Dam 8 is located on the left bank of the Monongahela River, 90.8 miles above the mouth of the river at Pittsburgh, PA.

DESCRIPTION: The project will consist of the replacement of the existing 56' x 360' lock with a modern 84' x 720' lock landward and adjacent to the existing lock.

AUTHORIZATION: Supplemental Appropriations Act of 1985 for Engineering and Design and Land Acquisition and Water Resources Development Act of 1986 for Construction.

REMAINING BENEFIT-REMAINING COST RATIO: The benefit cost ratio is 3.3 to 1 at 8-1/8 percent. The benefit to cost ratio is based on the replacement projects, Grays Landing Lock and Dam for Lock and Dam 7, and the Point Marion Lock for Lock 8, being in place.

TOTAL BENEFIT COST RATIO: 2.3 TO 1 at 8-1/8 percent.

INITIAL BENEFIT-COST RATIO: 4.1 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT COST RATIO: Based upon Feasibility Study on Monongahela River Navigation System, Locks and Dams 7 and 8, dated January 1984, with costs of October 1983 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$96,400,000
General Appropriations	$48,200,000	
Inland Waterways Trust Fund	48,200,000	
Total Estimated Project Cost		$96,400,000

SUMMARIZED FINANCIAL DATA (cont'd)

	General Appropriations	Inland Waterways Trust Fund	Accum. % of Est. Federal Cost
Allocations to 30 September 1989	$ 2,465,000	$ 2,465,000	
Conference Allowance for FY 1990	8,950,000	8,950,000	
Allocation for FY 1990	7,738,000 1/	7,738,000 2/	
Allocations through FY 1990	10,203,000	10,203,000	21
Allocation Requested for FY 1991	14,150,000	14,150,000	29
Scheduled Balance to Complete After 1991	23,847,000	23,847,000	
Unscheduled Balance to Complete After 1991	0	0	

1/ FY 1990 allocation reflects $863,000 reduction assigned as savings and slippage, $92,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $257,000 additional amount reprogrammed from the project.

2/ FY 1990 Allocation reflects $864,000 reduction assigned as savings and slippage, $92,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $256,000 additional amount reprogrammed from the project.

STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	5	Sep 1993

PHYSICAL DATA

LOCK: New chamber 84 feet wide x 720 feet long. Existing 56 feet wide x 360 feet long chamber to be removed.

DAM: Existing movable crest dam to remain. No change in pool elevations.

REAL ESTATE:

193 Acres - Unimproved land - lock site.

542

Division: Ohio River District: Pittsburgh

29 JAN 1990

Point Marion Lock and Dam (Lock & Dam 8), Monongahela River, PA and WV

27-138 O—90——18

JUSTIFICATION:

Commerce: Construction of the Point Marion Lock is an integral part of the plan of improvement of the Monongahela River for orderly replacement of old and obsolete navigation facilities. Lock 8, constructed during the period 1923-1926 (the dam was reconstructed in 1958-1959 to provide a movable crest and raise the pool by four feet), is obsolete and near the end of its economic life. In addition to the overall deteriorated physical condition and poor operating condition, the existing 56'x 360' lock is inadequate to efficiently pass the present and prospective volume of traffic. Recent trends in the towing industry have been toward utilization of larger tows in line with capacity provided by the new-larger facilities on the upstream and downstream portions of the Monongahela River Navigation System. Passage of larger tows through the locks require that they be separated into segments that necessitate two or more lockages. This breaking up of tows results in costly delays and increases the possibility of accidents.

Since this lock structure was not designed to pass the present type of traffic and with the increasing volume of commerce adding to the problem every year, the structural deterioration is progressing at an accelerated rate. This will result, in the very near future, in numerous and severe breakdowns of the facilities. The resulting interruptions to traffic to make such repairs will pyramid delays to navigation to the point of creating an intolerable condition.

The average annual navigation benefits of $62,400,000 were derived by determining the savings to shippers using the waterway and the estimated traffic that would use the waterway.

To fully attain all of navigation's average annual benefits, the replacement of Lock and Dam 7 (Grays Landing Lock and Dam) and Lock 8 (Point Marion Lock) must be in place. Therefore, the benefits indicated are for both projects. The total average annual cost of $27,025,000 was calculated using a total cost of $223,500,000 for the replacement of both structures. Waterborne Commerce passing through the Point Marion Lock site is shown below:

Year	Tonnage
1984	9,968,000
1985	8,380,000
1986	10,200,000
1987	11,400,000
1988	11,200,000
1989 (Projection)	11,400,000

543

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Construction of Lock	$26,300,000
Continue Buildings, Grounds and Utilities	600,000
Engineering and Design	225,000
Supervision and Administration	1,175,000
Total	$28,300,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concept reflected in the Water Resources Development Act of 1986, 50% of the total cost of construction will be derived from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: None required.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $96,400,000 is an increase of $7,600,000 over the latest estimate ($88,800,000) presented to Congress (FY 1989). This change includes the following items:

ITEM	INCREMENTAL CHANGE
Price Escalation on Construction Features (includes inflation allowance from 1 October 1989 through the construction period)	$1,300,000
Post Contract Award and Other Estimating Adjustments	6,300,000
Total	$7,600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with the EPA on 3 August 1984.

OTHER INFORMATION: Funds for Engineering and Design were allocated in FY 1986 under the General Investigations Appropriation. Funds to initiate Land Acquisition were allocated in FY 1986 under Construction, General Appropriation from funds previously appropriated.

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Gallipolis Locks and Dam, West Virginia & Ohio (Continuing)

LOCATION: Gallipolis Locks and Dams is situated in the Middle Ohio Valley at Ohio River mile 279.2, about 14 miles downstream from the mouth of the Kanawha River in West Virginia and about 30 miles upstream from the City of Huntington, West Virginia. The new locks will be in Mason County, West Virginia; the abutment of the dam is in Gallia County, Ohio.

DESCRIPTION: The plan for replacement of the Gallipolis Locks and Dam project includes the rehabilitation of the non-navigable, high-lift, gated, existing dam and construction of a 1200- by 110-foot main lock and a 600- by 110-foot auxiliary lock in a canal extending across a slight bend in the river bypassing the existing locks and dam on the left descending (West Virginia) bank. The canal will, in effect, straighten the river bend and provide a relatively straight downbound approach for several miles.

AUTHORIZATION: River and Harbor Act of 1935, Supplemental Appropriation Act of 1985 and the Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 47.0 to 1 at 8-1/8 percent interest rate.

TOTAL BENEFIT-COST RATIO: 11.5 to 1 at 8-1/8 percent interest rate.

INITIAL BENEFIT-COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1985) was 11.3 to 1. The benefit-cost ratio is based on the projects fair share of system benefits in the Ohio River Basin System.

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum dated November 1982 with costs at September 1982 price levels.

SUMMARIZED FINANCIAL DATA

			PERCENT	
COMPLETION		STATUS (1 January 1990)	COMPLETE	SCHEDULE
New Construction Work (Sec 102, 1986 WRDA)				
Estimated Federal Cost	$266,000,000	Entire Project	33	Jun 1999
General Appropriations	$133,000,000			
Inland Waterways Trust Fund	133,000,000			

Division: Ohio River District: Huntington Gallipolis Locks and Dam, WV & OH

19 JAN 1990

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SUMMARIZED FINANCIAL DATA (Cont'd)

Dam Rehabilitation (Sec 1, 1935 R&HA and Sec 1405, 1986 WRDA)				
Estimated Federal Cost		79,000,000	Lock Construction	Jul 1993
General Appropriations	$39,500,000		Mitigation Site	Jun 1998
Inland Waterways Trust Fund	39,500,000		Dam Rehabilitation	Jun 1999
Total Estimated Federal Cost		$ 345,000,000		
General Appropriations	$172,500,000			
Inland Waterways Trust Fund	172,500,000			
Estimated Non-Federal Cost		0		
Cash Contributions	0			
Other Costs	0			
Total Estimated Project Cost		$345,000,000		

	General Appropriations	Inland Waterways Trust Fund	Accum. % of Est. Fed. Cost
Allocations to 30 September 1989	$52,249,000	$52,249,000	
Conference Allowance for FY 1990	39,450,000	39,450,000	
Allocation for FY 1990	30,464,000 1/	30,464,000 1/	
Allocations through FY 1990	82,713,000	82,713,000	48
Allocation Requested for FY 1991	23,150,000	23,150,000	61
Scheduled Balance to Complete after FY 1991	66,637,000	66,637,000	
Unscheduled Balance to Complete after FY 1991	0	0	

1/ FY 1990 allocation reflects $7,611,000 reduction assigned as savings and slippage, $811,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $9,550,000 reprogrammed from the project.

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PHYSICAL DATA

Bypass Canal: Length - 1.7 miles.
Bottom Width - 500 feet (minimum).

Locks: Number - 2
Main Lock - 110 ft. x 1,200 ft.
Auxiliary Lock - 110 ft. x 600 ft.
Normal Lift - 23 ft.

Lands and Damages:

Total existing easement area, acres	1,798
Required for existing Locks & Dam, acres	82
Additional required for new locks & canal, acres	546
Additional required for mitigation, acres	837

No residential structures are located in the affected area.

Dam: Major rehabilitation of the existing navigation dam to include replacing the dam roller gates, strengthening the foundation and adding an emergency bulkhead closure system.

JUSTIFICATION: Construction of the project will eliminate a severe navigation hazard on the Ohio River and will permit safe and efficient transportation through the project itself as well as complete a series of 1200' x 110' locks from near Pittsburgh to Smithland Locks and Dam at River Mile 918.5. Reduced delays and transportation costs will benefit directly and indirectly the economy of the nation.

Annual transportation benefits of $166,000,000 (8-1/8 percent) are estimated for the project. Although commodity traffic at Gallipolis fell sharply in 1982 and 1983, traffic rebounded significantly. It is expected the traffic levels at Gallipolis will follow the trend predicted in the authorization document. Those trends forecast a major congestion problem (approximately 30 hours delay per tow) by the year 1990. Commodity traffic projections reflect 64.5, 75.0 and 93.5 million tons transiting the project in 1990, 2000 and 2020, respectively. Two other important factors bearing on the need to modernize Gallipolis are its age and condition and safety considerations. Gallipolis is over 50 years old and is becoming increasingly difficult to operate and maintain. Lock outages are a major problem now and will become very critical in the future. It is well documented that the existing project is unsafe.

As the project is strategically located between the highly industrialized upper Ohio River Basin area and its product markets and supply regions, Gallipolis captures a significant portion of the commodities transiting the Ohio River. Consequently, the economy of the region and the nation itself will benefit by its construction.

Average annual benefits for the project are estimated at $166,140,000 (September 1982 price levels).

Annual Benefits	Amount
Navigation	$166,000,000
Recreation	140,000
Total	$166,140,000

Division: Ohio River District: Huntington

19 JAN 1988

Gallipolis Locks and Dam, WV & OH

FISCAL YEAR 1991: The requested amount will be applied as follows:

	New Construction	Major Rehabilitation
Continue Locks and Canal Construction	$40,300,000	
Continue Cultural Resources Preservation	350,000	
Permanent Operating Equipment	350,000	
Engineering and Design	650,000	$1,650,000
Construction Management	3,000,000	
Total	$44,650,000	$1,650,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts contained in the Water Resources Develop-ment Act of 1986, 50 percent of the total costs of construction will be derived from Inland Waterways Trust Fund.

The West Virginia Department of Natural Resources will be responsible for operation and management of mitigation lands at an estimated average annual cost of $50,000.

STATUS OF LOCAL COOPERATION: The West Virginia Department of Natural Resources by letter dated 29 January 1981 agreed to assume responsibility for operation and management of the mitigation area.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $345,000,000 is an increase of $9,000,000 over the latest estimate ($336,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Adjustments in the Estimated Allowance for Future Inflation	$9,368,000
Post Contract Award and Other Estimating Adjustments	- 368,000
Total	$9,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with EPA on 8 January 1981.

OTHER INFORMATION: Funds to initiate and work on plans and specifications for the locks and access channel were allocated in FY 1984 ($100,000) and FY 1985 ($1,700,000) under the General Investigations appropriation. Funds to initiate construction were appropriated in FY 1985.

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: Winfield Locks and Dam, West Virginia (Continuing)

LOCATION: Winfield Locks and Dam is located on the Kanawha Ri.er near Eleanor, West Virginia, approximately 31 miles above its confluence with the Ohio River. The pool is located entirely in West Virginia. The new lock will be located landward of the existing locks on the north side of the river with an additional gate bay between the old and new locks.

DESCRIPTION: The proposed modernization plan includes the construction of an additional 110- by 800-foot high-lift lock on the right descending bank landward of the existing locks and a 110-foot-wide non-navigable gate bay. The new lock will be skewed six degrees landward (upstream to downstream) from the existing locks. The plan includes the continued use of both 56- by 360-foot lock chambers as auxiliaries when the new lock is operational. The existing dam will also remain in use.

AUTHORIZATION: Supplemental Appropriation Act of 1985 for Engineering and Design and Land Acquisition and the Water Resources Development Act of 1986 for construction.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 3.7 to 1 at 8-1/8 percent interest rate.

TOTAL BENEFIT-COST RATIO: 3.0 to 1 at 8-1/8 percent interest rate.

INITIAL BENEFIT-COST RATIO: The benefit-cost ratio for the fiscal year for which Congress made initial funds available (FY 1985) was 6.2 to 1 at 8-1/8 percent. The benefit-cost ratio is based on the projects fair share of system benefits in the Kanawha River Basin System.

BASIS OF BENEFIT-COST RATIO: Benefits are from the Design Memorandum No. 1, General Design Memorandum dated April 1988.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$203,000,000
General Appropriations	$101,500,000	
Inland Waterways Trust Fund	101,500,000	
Estimated Non-Federal Cost		0
Cash Contributions	0	
Other Costs	0	
Total Estimated Project Cost		$203,000,000

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	6	Sep 1995

PHYSICAL DATA

Lock: Number - 1
Main Lock - 110 ft. x 800 ft.
Normal Lift - 28 ft.

Lands and Damages:
Total existing easement areas, acres 1,243
Required for existing Lock & Dam, acres 41
Additional required for new lock, acres 338
Encompassing a mobile home park (37 units), two active industries and 1 non-active industry.

	General Appropriations	Inland Waterways Trust Fund	Accum. % of Est. Fed. Cost
Allocations to 30 September 1989	$ 4,975,000	$ 4,975,000	
Conference Allowance for FY 1990	10,400,000	10,400,000	
Allocation for FY 1990	8,992,000 1/	8,992,000 1/	
Allocations through FY 1990	13,967,000	13,967,000	14
Allocation Requested for FY 1991	8,100,000	8,100,000	22
Scheduled Balance to Complete after FY 1991	79,433,000	79,433,000	
Unscheduled Balance to Complete after FY 1991	0	0	

1/ FY 1990 reflects $2,006,000 reduction assigned as savings and slippage, $214,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $596,000 reprogrammed from the project.

550

Division: Ohio River

District: Huntington

Winfield Locks and Dam, WV

JUSTIFICATION: Winfield Locks and Dam links the Kanawha Valley, an important chemical and coal producing area, to its product markets and supply areas. Upbound traffic through Winfield is composed of important supplies of chemicals, feedstocks, aggregates, and petroleum fuels. Downbound traffic is composed largely of coal produced in the upper Kanawha River Basin and destined for electric generating facilities and coking plants throughout the middle and upper Ohio River Basin. During 1988, 18.1 million tons of traffic locked through Winfield. Coal is the major commodity shipped on the Kanawha River, accounting for approximately 60 percent of the total tonnage.

Although the Winfield project is structurally sound, it presents a significant impediment to the efficient flow of waterborne commerce due to its outdated features. Today, only 50 percent of the barges processed at Winfield are the size it was originally designed to serve and only one percent of the tows are small enough to be locked in a single operation. The average delay per tow was 3.3 hours in 1988 with an average of 4 lockages per tow. The total processing time - lockage plus delay time - is 6.3 hours, one of the highest in the Ohio River system. And, to compound the effect on flow efficiency, Winfield traffic demand is projected to more than triple over the new 70 years, from 13 million tons in 1980 to 46 million tons by 2050, an equivalent annual growth rate of 1.8 percent.

Navigation safety has not been a major problem at Winfield Locks, but the potential for navigation accidents is present. This problem stems from the orientation of the locks and the design of the lock walls. The locks are located on the inside of a bend in the river that requires tows to make several maneuvers to enter and exit the locks. This is especially difficult during high river flows. With 800-foot-long tows becoming more common, the short upper guard wall also presents a problem. The upper guard wall is only 450 feet long, which means that about half of a tow extends beyond the end of the wall as lockage progresses. This presents a danger that the tow might break up and be swept down on the dam during high-flow conditions. As the number of large tows increases at Winfield, the probability of accidents occurring in such instances also increases.

Average annual benefits for the project total $59,275,000.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Land Acquisition	$ 780,000
Continue Phase I Construction	12,150,000
Continue Cultural Resources Preservation	130,000
Engineering and Design	1,990,000
Construction Management	1,150,000
Total	$16,200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing contained in the Water Resources Development Act of 1986, 50 percent of the total costs of construction will be derived from the Inland Waterways Trust Fund.

Local interests are required to pay all costs associated with operation and management of the mitigation area, presently estimated at $30,000 annually.

STATUS OF LOCAL COOPERATION: The West Virginia Department of Natural Resources agreed in principal to assume responsibility for operation and management of the mitigation area.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $203,000,000 is an increase of $8,000,000 from the latest estimate ($195,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Adjustments in the Estimated Allowance for Future Inflation	$6,119,000
Design Changes	-4,211,000
Post Contract Award and Other Estimating Adjustments	6,092,000
Total	$8,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 25 September 1987.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1985 and funds to initiate construction were appropriated in FY 1986.

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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Evansville, Indiana (Continuing)

LOCATION: Evansville is located in Vanderburgh County, Indiana, on the right bank of the Ohio River, 792.2 miles below Pittsburgh, Pennsylvania.

DESCRIPTION: The project is a system of earth levees, concrete floodwalls, pumping plants, and related items for the protection of Evansville, Indiana, (1980 population - 129,667) from Ohio River floods 3 feet higher than the record flood of 1937. The project is divided into three sections, as follows: Knight Township Section, consisting of 39,700 feet of earth levee, 140 feet of concrete wall and 5 pumping plants; Pigeon Creek Section (2 units), consisting of 23,025 feet of earth levee, 9,733 feet of concrete wall and 11 pumping plants; Howell Section (2 units): Unit 1 consisting of 17,100 feet of earth levee, 1,140 feet of concrete wall and 5 pumping plants; and Unit 2 (inactive) consisting of 2,400 feet of earth levee, 2,760 feet of concrete wall and 3 pumping plants.

AUTHORIZATION: 1937 Flood Control Act

REMAINING BENEFIT-REMAINING COST RATIO: 7.5 to 1 at 2-5/8 percent. The benefit-cost ratio is based on the project functioning independently.

TOTAL BENEFIT-COST RATIO: 2.8 to 1 at 2-5/8 percent.

INITIAL BENEFIT-COST RATIO: 3.1 to 1 at 2-5/8 percent (FY 1938)

BASIS OF BENEFIT-COST RATIO: Benefits are from the Evansville LPP Supplement No. 1 to DM #4 Pigeon Creek Section, Part 2, approved in April 1971 at 1969 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct of Est. Fed. Cost	STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$51,100,000		Entire Project	66	Aug 1994
Estimated Non-Federal Cost		5,500,000				
Cash Contribution	$ -0-					
Other Costs	5,500,000					
Total Estimated Project Cost		56,600,000				

Division: Ohio River

District: Louisville

30 JAN 1990

Evansville, IN

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SUMMARIZED FINANCIAL DATA: (cont'd)

Allocations to 30 September 1989	34,340,000	
Conference Allowance for FY 1990	5,000,000	
Allocation for FY 1990	4,323,000	1/
Allocations thru FY 1990	38,663,000	75
Allocation Requested for FY 1991	5,100,000	86
Scheduled Balance to Complete after FY 1991	7,337,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ FY 1990 allocation reflects $482,000 reduction assigned as savings and slippage, $51,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $144,000 reprogrammed from the project.

PHYSICAL DATA

The project is a system of earth levees, concrete floodwalls, pumping plants, and related items for the protection of Evansville, Indiana (1980 population - 129,667) from Ohio River floods 3 feet higher than the record flood of 1937. The project is divided into three sections, as follows:

Knight Township Section

Earth Levee	39,700 feet
Concrete Wall	140 feet
Pumping Plants	5

Pigeon Creek Section: (Two Units)

Earth Levee	23,025 feet
Concrete Wall	9,733 feet
Pumping Plants	11

Howell Section: (Two Units)

Unit 1 (complete)	
Earth Levee	17,100 feet
Concrete Wall	1,140 feet
Pumping Plants	5
Unit 2 (inactive)	
Earth Levee	2,400 feet
Concrete Wall	2,760 feet
Pumping Plants	3

JUSTIFICATION: The project, when completed, will protect the City of Evansville, Indiana, against Ohio River floods. Severe floods occurred in 1913, 1937, 1945 and 1964. In the 1937 flood, the maximum of record, flood damages in Evansville were estimated at $4,793,000. In 1945 flood damages in the city were estimated at $1,108,000. The Knight Township Section, although only partially complete at the time of the 1945 flood, provided some degree of protection to the overflow area in the eastern (upstream) section of the city. In 1964, flood damages were estimated at $977,300. The completed Knight Township and Howell Unit 1 Sections afforded partial protection to the city and prevented additional damages estimated at $3,339,000.

JUSTIFICATION: (CONT'D)

In recent years, considerable expansion of industry and housing has taken place and flood damages for a recurrence of the 1937 flood would be much higher. The city is served by railroads and highways and is an important communication route between north and south. The property to be protected by the project has a value in excess of $800,000,000 (October 1969 values). The average annual benefits, all flood control, are $870,000 based on 1 October 1969 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Pigeon Creek Section, Unit 2

Continue construction of levees	$1,990,000
Continue construction of North 1st Avenue, Diamond Avenue, and Stringtown Road Pumping Plants	2,660,000
Engineering and Design	22,000
Supervision and Administration	428,000
Total	$5,100,000

NON-FEDERAL COSTS: In accordance with cost sharing and financing concepts reflected in the 1937 Flood Control Act, local interests are required to comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements and rights-of-way	$5,430,000	
Relocate utilities	70,000	
Maintain and operate all works after completion		$30,000
Total Non-Federal First Cost	$5,500,000	$30,000

STATUS OF LOCAL COOPERATION: The City of Evansville, Indiana, by an ordinance passed by the Common Council of the city in 1938, indicated its intent to fulfill the requirements of local cooperation for flood protection. Under date of 7 April 1958, the Common Council of the city passed a resolution requesting early completion of the Riverside Drive Unit and the Pigeon Creek Section and giving assurances to fulfill the requirements of local cooperation.

STATUS OF LOCAL COOPERATION: (cont'd)

The Evansville-Vanderburgh Levee Authority District executed formal assurances of local cooperation on 11 February 1963, which were accepted by the District Engineer on 20 February 1963. These assurances are considered applicable for Pigeon Creek Section Unit 2. Supplemental Assurances covering the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (PL 91-646) were received from the Levee Authority District on 16 July 1971 and accepted by the District Engineer on 23 July 1971.

Operation and maintenance of completed works is the responsibility of the Levee Authority District. Knight Township and Howell Section Unit 1 were transferred to the District in January 1949, Pigeon Creek Section Unit 1 was transferred in January 1967, and eleven gatewells added to existing drainage structures in Knight Township and Howell Section Unit 1 were transferred in May 1980.

Pigeon Creek Section - Unit 2, Part 1 - Pennsylvania Avenue to Cedar Street Levee and Floodwall and Dresden Street and Sixth Avenue pumping plants were transferred to the Evansville-Vanderburgh Levee Authority District for operation and maintenance in November 1980. Delaware Street pumping plant was transferred to the Evansville-Vanderburgh Levee Authority District for operation and maintenance in February 1983.

A $2,000,000 bond issue, to provide funds for purchase of rights-of-way for Pigeon Creek Unit 2, was approved by the City and County Councils, and the Indiana State Board of Commissioners in June 1971, and sold in August 1971. Authorization of-entry for Pigeon Creek Unit 2, Part 1 - Pennsylvania Avenue to Cedar Street was furnished 27 June 1973. Authorization-of-entry for 11 gatewells added to existing drainage structures, Knight Township and Howell Section Unit 1 was furnished 16 August 1976. Authorization-of-entry for Pigeon Creek Section, Unit 2, Part 2, Cedar Street to Stringtown Road with minor deficiencies was furnished 8 April 1981. Pigeon Creek Section, Unit 2, Part 2 was transferred to the Evansville - Vanderburgh Levee Authority District for operation and maintenance on 1 July 1985.

A second bond issue for $750,000 to provide funds to complete acquisition of rights-of-way for Pigeon Creek, Unit 2, Part 2 - Cedar Street to Stringtown Road and for purchase of rights-of-way for Part 3 - Stringtown Road to U. S. Highway 41 and for Part 4 - U. S. Highway 41 to Southern Railroad was approved by Evansville City Council in April 1980, the Vanderburgh County Council and the Indiana State Board of Tax Commissioners in May 1980 and sold in May 1980.

A third bond issue for $250,000 to provide funds to complete acquisition of rights-of-way for Pigeon Creek, Unit 2, Parts 3 and 4, was approved by the City and County Councils in May 1985 and the Indiana State Board of Commissioners in June 1985 and sold in June 1985. Authorization of Entry for Part 3 - Stringtown Road to U. S. Highway 41 was furnished 16 February 1988.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $51,100,000 is an increase of $700,000 from the latest estimate of ($50,400,000) presented to Congress (FY 1990). This change includes the following item.

Item	Amount
Price Escalation on Construction Features	$700,000
Total	$700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with CEQ on 19 November 1973.

OTHER INFORMATION: Funds to initiate preconstruction planning and construction were appropriated in FY 1938. Appropriation of construction funds was stopped in FY 1945. Appropriation of preconstruction planning funds was resumed in FY 1957. Appropriation of construction funds was resumed in FY 1959, and stopped in FY 1967. Appropriation of construction funds was again resumed in FY 1970.

Howell Section, Unit 2, was reclassified "inactive" on 7 July 1977 on the basis of studies that indicate this separable part of the project is not economically justified.

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APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Yatesville Lake, Kentucky (Continuing)

LOCATION: The project is located in Lawrence County, Kentucky, on Blaine Creek, a tributary of the Big Sandy River, 4.0 miles south of Yatesville and 18.1 miles above the mouth of Blaine Creek.

DESCRIPTION: The project provides for the construction of an earthfill dam 104 feet in height and 760 feet in length with an uncontrolled spillway approximately five miles west of Louisa, KY. The reservoir will provide a total storage of 86,951 acre-feet and control of a drainage area of 208 square miles.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is essentially complete.

INITIAL BENEFIT-COST RATIO: The benefit to cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1973) was 1.4 to 1 at 3-1/4%. The ratio was based on Yatesville Lake being the last added increment following six other lakes in the Big Sandy River Basin; and, as the next added project on the Ohio River System following projects completed, under construction and in an advanced planning stage as of 1968.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement		$99,385,000
Scheduled Construction	$94,363,000	
Unscheduled Construction	5,022,000	
Future Non-Federal Reimbursement		0
Scheduled Construction	0	
Unscheduled Construction	0	
Estimated Federal Cost (Ultimate)		99,385,000
Scheduled Construction	94,363,000	
Unscheduled Construction	5,022,000	

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	83	Sep 1992 1/

PHYSICAL DATA

Dam: Type - Rockfill
Height - 104 feet
Length - 760 feet

Spillway:
Type - Uncontrolled about one-half mile southeast of right abutment
Length - 120 feet
Design Discharge - 54,600 c.f.s.

1/ Remaining recreation facilities are not scheduled pending development of cost sharing agreements with local interest for construction and non-Federal operation and maintenance.

SUMMARIZED FINANCIAL DATA (Cont'd)

Estimated Non-Federal Cost			$6,615,000
Scheduled Construction		$580,000	
Cash Contributions	$580,000		
Other Costs	0		
Reimbursements	0		
Unscheduled Construction		6,035,000	
Cash Contributions	6,035,000		
Other Costs	0		
Reimbursements	0		

Total Estimated Scheduled Construction Cost	$ 94,943,000
Total Estimated Unscheduled Construction Cost	11,057,000
Total Estimated Project Cost	106,000,000

		Accum. % of Est. Fed. Cost
Allocations to 30 September 1989	$86,011,000	
Conference Allowance for FY 1990	8,500,000	
Allocations for FY 1990	6,799,000 1/	
Allocations through FY 1990	92,810,000	93
Allocations Requested for FY 1991	250,000	94
Scheduled Balance to Complete after FY 1991	1,303,000	
Unscheduled Balance to Complete after FY 1991	5,022,000	

PHYSICAL DATA (Cont'd)

Lands and Damages:
Acres - 19,930
Type - Rural residential and subsistence farms.
Improvements - Predominantly farm buildings and residential.

Reservoir Capacity	Net Acre-Feet
Sediment Reserve	6,383
Permanent Water Quality Control	29,865
Seasonal Water Quality Control	
Recreation	40,809
Flood Control Pool	86,951

Outlet Works:
Type - Tunnel in left abutment
Length - 925 feet
Diameter - 13' - 0"

Relocations:
Roads: 9.87 miles ($12,070,000)
Cemeteries & Utilities ($4,845,000)

1/ FY 1990 allocation reflects $820,000 reduction assigned as savings and slippage, $87,000 sequestered in accordance with Gramm-Rudman-Hollings Act, and $794,000 reprogrammed from the project.

559

JUSTIFICATION: The project will reduce flood flows along the Ohio River. It will also assist in meeting the need evaluated by the U.S. Public Health Service, and subsequently substantiated by EPA, for low flow augmentation in the interests of water quality control for the industrialized portion of the Big Sandy River Valley. Improving the stream quality aspects will be of significant value for residential and further industrial growth in the area. The project will also provide water recreation facilities to the Huntington-Ashland metropolitan area and will assist in attracting an equitable portion of tourism into an area where such activity is presently underdeveloped. In addition to flood control, the operation pool will be used for recreation and fish and wildlife. Average annual benefits for the project are estimated as follows:

Annual Benefits	Amount
Flood Control	$1,313,000
Redevelopment	949,000
Recreation	1,076,400
Water Quality Control	1,446,000
TOTAL	$4,784,400

FISCAL YEAR 1990: The requested amount will be applied as follows:

Complete Land Acquisition	$30,000
Continue Relocations	30,000
Develop Recreation Facilities	10,000
Engineering and Design	30,000
Construction Management	150,000
Total	$250,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Federal Water Project Recreation Act of 1965, the non-Federal sponsor must comply with the requirement listed below.

Requirements of Local Cooperation	First Cost	Annual Cost
Pay one-half of the separable first cost allocated to recreation and fish and wildlife enhancement and bear all costs of operation, maintenance, and replacement of recreation lands and facilities.	$6,615,000	$146,000
Total Non-Federal Costs	$6,615,000	$146,000

Division: Ohio River District: Huntington Yatesville Lake, KY

STATUS OF LOCAL COOPERATION: The recreation cost sharing contract was signed by the Secretary of the Army on 8 May 1973. Assurances required by Section 221 of P.L. 91-611 were provided by officials of the Commonwealth of Kentucky and approved 6 June 1973.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $106,000,000 is a decrease of $1,000,000 from the latest estimate ($107,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Adjustments in the Estimated Allowance for Future Inflation	$1,030,000
Post Contract Award and Other Estimating Adjustments	30,000
Total	$1,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with CEQ on 12 April 1972.

OTHER INFORMATION: Funds to initiate preconstruction planning were allocated in FY 1967, and funds to initiate construction were allocated in FY 1973.

561

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Mill Creek, Ohio (Continuing)

LOCATION: The proposed project is located along 28-mile length of Mill Creek in Hamilton and Butler Counties, Ohio, and the 3/4-mile length of East Fork in Hamilton County, Ohio. Lower Mill Creek is in the commercial and industrial heart of the Cincinnati metropolitan area in the southwestern portion of the State.

DESCRIPTION: The project includes: 18 miles of channel improvement, 8 miles of land fill, 2 miles of levee, 2 pumping plants, modification of bridges, and the addition of 2 pumping units at the existing Mill Creek barrier dam. Acquisition and development with appropriate landscaping of 620 acres along the creek will be provided for high-density urban oriented recreational use.

AUTHORIZATION: 1970 Flood Control Act

REMAINING BENEFIT-REMAINING COST RATIO: 5.8 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 3.2 to 1 at 5-5/8 percent.

INITIAL BENEFIT-COST RATIO: 3.2 to 1 at 5-5/8 percent (FY 1975).

BASIS OF BENEFIT-COST RATIO: Design Memorandum No. 3, approved in September 1975 at 1975 price levels.

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SUMMARIZED FINANCIAL DATA			Accum. Pct of Est. Fed. Cost	STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$160,000,000		Entire Project	45	Dec 1998
Future Non-Federal Reimbursement		4,336,000				
Estimated Federal Cost (Ultimate)		$155,664,000				
Estimated Non-Federal Cost		$ 42,087,000				
Other Costs	$37,751,000					
Reimbursement:	4,336,000					
Recreation	$ 604,000					
Recreation Lands	3,732,000					
Total Estimated Project Cost		$197,751,000				

Division: Ohio River District: Louisville

Mill Creek, OH

SUMMARIZED FINANCIAL DATA: (cont'd)

Allocations to 30 September 1989	78,853,000		
Conference Allowance for FY 1990	10,700,000		
Allocation for FY 1990	9,251,000	1/	
Allocations through FY 1990	88,104,000		57
Allocation Requested for FY 1991	11,200,000		64
Scheduled Balance to Complete after FY 1991	56,360,000		
Unscheduled Balance to Complete after FY 1991	0		

1/ FY 1990 allocation reflects $1,032,000 reduction assigned as savings and slippage and $110,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $307,000 reprogrammed from the project.

PHYSICAL DATA

Channel Improvements:
Length - 18 miles

Pumping Plants:
Number - 3

Relocations:
Railroad bridges - $4,808,000

Levee:
Length - 2 miles

Land Fills:
Length - 8 miles

JUSTIFICATION: The proposed project would protect the Mill Creek Basin from residual flood damages resulting from headwater flooding. On the average, damaging headwater floods occur about twice yearly. As the result of the small size of the Mill Creek drainage area, the basin is potentially subject to severe flooding from any type storm with limited time available for evacuation. The area contains about 3,000 acres of intensively developed land and a broad mix of industrial, commercial, and residential development; and a complex network of transportation facilities including roads, streets, interstate highways, extensive railroad yards, truck and spur lines, and utilities. Large volumes of toxic substances are stored and utilized in the flood plain by manufacturers. Flammable and volatile liquids are also present in the flood plain in large quantities. Flooding creates extreme hazards in the areas of public health, fire, and explosion. The value of property in the flood plain of Hamilton County is about $2.7 billion (1989 values). About 5,000 persons reside and 20,000 persons are employed in the flood plain. However, the entire population of the metropolitan area of Cincinnati is adversely affected by Mill Creek flooding. The maximum flood of record occurred in March 1913 and the January 1959 flood was the second largest flood of record. A recurrence of the January 1959 flood, under current conditions of development, would cause damages estimated at $24,400,000 (1989 values). A recent damaging flood occurred in March 1982. The proposed project will provide protection for the developed portions of the Mill Creek flood plain for a flood having a frequency of one or more

JUSTIFICATION: (cont'd)

occurrences every 50 years from the barrier dam (stream mile 0.3) upstream of Mitchell Avenue (stream mile 6.0) except for 100-year level protection on the right bank between stream miles 3.7 and 4.0 and for a flood having a frequency of one or more occurrences every 100 years from Mitchell Avenue (stream mile 6.0) to I-275 (stream mile 18.2). The 18-mile portion of the project in Hamilton County involves structural measures for channel improvement while the 10-mile portion of the project in Butler County involves regulation of development in the flood plain. In addition, the proposed project would provide specific-use recreation activities along the length of the Mill Creek main stem in Hamilton County. Average annual benefits are estimated at $18,865,000 based on January 1975 price levels.

Annual Benefits	Amount (1 January 1975)
Flood Control	$18,192,000
Recreation	570,000
Total	$18,865,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue relocation of railroad bridges	$ 10,000
Continue construction of channels and canals	7,395,000
Continue construction of levees and floodwalls	1,300,000
Complete construction of pumping plants	245,000
Engineering and Design	1,500,000
Supervision and Administration	750,000
Total	$11,200,000

NON-FEDERAL COSTS: In accordance with the cost-sharing and financing concepts reflected in the 1970 Flood Control Act, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments during Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide for all lands, easements, and rights-of-way for flood control facilities.	$15,364,000	

Division: Ohio River District: Louisville Mill Creek, OH

29 JAN 1990

NON-FEDERAL COSTS: (cont'd)

Pay all costs to relocate bridges (except railroad bridges) and utilities where necessary in construction of the project and bear all costs for operation and maintenance of major replacements of flood control facilities.	22,387,000	$120,000
Pay or contribute in kind a portion of the cost of the recreation facilities which, when added to the cost of recreation lands, would amount to at least 50 percent of the total first cost of the recreation lands and recreation facilities.	4,336,000	119,000
Total Non-Federal Costs	$42,087,000	

STATUS OF LOCAL COOPERATION: The Millcreek Valley Conservancy District is the responsible cooperating agency for all required assurances.

An assurance agreement covering local cooperation requirements for the project consistent with Section 221 of the 1970 Flood Control Act and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 was executed by the Conservancy District on 6 February 1975 and for the Secretary of the Army on 28 March 1975. A recreation cost-sharing contract was executed by the Conservancy District 25 February 1975 and approved for the Secretary of the Army 28 May 1975.

The Conservancy District presented the approved project plan to the State Conservancy Court on 19 January 1977 for concurrence on the plan changes and to present evidence of sufficient funding after which a district preliminary tax assessment would be levied.

Also, Millcreek Valley Conservancy District letter, dated 8 October 1979, outlined its real estate acquisition schedule of planned events that provided for completion of acquisition for the entire project on or before 30 September 1981. Subsequent developments precluded the achievement of that schedule and there is no Conservancy District schedule for completion of right-of-way acquisition for the entire project.

Ohio Department of Natural Resources permits relating to construction of the various sections of the entire Mill Creek project have been either procured or waived.

STATUS OF LOCAL COOPERATION: (cont'd)

The authorizations-of-entry for Sections 7A, 3, 2, 4A, and 1 were executed by the local sponsor 20 September 1979, 14 December 1981, 20 June 1983, 24 March 1986, and 11 September 1989, respectively.

Channel Section 3 has been completed and was transferred to the Millcreek Valley Conservancy District effective 1 October 1984.

As of 1 December 1989, the local sponsor has acquired 7 of the required 26 easements for Section 4B and two of the required three easements for Section 8.

The current non-Federal cost estimate of $42,087,000 (Oct 89) is an increase of $21,273,000 over the approved estimate ($20,814,000 - Oct 74) in the local cooperation agreement. This increase is based on price escalation and inflation allowance through the construction period for construction features.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $160,000,000 is a decrease of $3,000,000 from the latest estimate of $163,000,000 presented to Congress (FY 1990) and results entirely from adjustments in the inflation allowance through the construction period.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (survey scope) was filed with CEQ on 7 October 1970, and included in the Authorization Report, House Document No. 91-413. The final Environmental Impact Statement was filed with CEQ on 17 October 1974.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1972 and funds to initiate construction were appropriated in FY 1975.

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APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Turtle Creek, Pennsylvania (Continuing)

LOCATION: The project is located in Allegheny and Westmoreland Counties near Pittsburgh, Pennsylvania. The protection facilities consist of channel improvements on lower Turtle Creek and lower Thompson Run.

DESCRIPTION: The existing channel improvement project was constructed during the period 1962-1967. The proposed project consists of debris and sediment removal from the Turtle Creek and Thompson Run channels and debris basin; clearing trees and brush from channel side slopes, restoration of channel side slopes, repairs to concrete retaining walls, debris dams, trashracks, spalled concrete joints and drainage appurtenances; removal of vegetative growth from weepholes.

AUTHORIZATION: The Flood Control Act of 1958 authorized the channel improvement project on Turtle Creek. The Fiscal Year 1985 Supplemental Appropriations Act specified that the Secretary of the Army, acting through the Chief of Engineers, is authorized and directed to repair and restore the Turtle Creek, Pennsylvania, local protection project.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable since initial construction has been completed.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: 2.2 to 1 at 2-5/8 percent (FY 1962).

BASIS OF BENEFIT-COST RATIO: Based on General Design Memorandum, dated February 1963 with costs at 1 October 1962 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. % of EST. FED. COST
- ORIGINAL PROJECT -			
Actual Federal Cost		$15,351,000	
Actual Non-Federal Cost		1,840,000	
Cash Contributions	$ 0		
Other Costs	1,840,000		
Total Actual Original Cost		$17,191,000	
- REPAIR AND RESTORATION WORK -			
Estimated Federal Cost		$ 1,950,000	
Estimated Non-Federal Cost		650,000	
Cash Contributions	$ 650,000		
Other	0		
Total Estimated Cost		$ 2,600,000	
Total Estimated Project Cost		$19,791,000	
Federal Cost		17,301,000	
Non-Federal Cost		2,490,000	

SUMMARIZED FINANCIAL DATA		ACCUM. % of EST. FED. COST
Federal Allocations to 30 Sep 1989	$15,747,000	
Conference Allowance for FY 1990	715,000	
Allocations for FY 1990	618,000 1/	
Allocations thru FY 1990	16,365,000	91
Allocation Requested for FY 1991	936,000	96
Scheduled Balance to Complete After FY 1991	0	
Unscheduled Balance to Complete After FY 1991	0	

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project (Restoration)	13	Sep 1991

1/ FY 1990 allocation reflects $69,000 reduction assigned as savings and slippage, $7,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $21,000 reprogrammed from the project.

EXISTING CONDITION: The project, constructed during the period 1962-1967, consists mainly of channel excavation; concrete and stone lining; cantilever and bar anchored steel sheet pile walls; concrete cantilever and gravity walls; alterations to the Westinghouse Electric Corporation backwater flood gate and sill; raising of railroad tracks and bridge; a new railroad bridge; protection of various bridge substructures, five concrete drop structures on Thompson Run; six debris basins on Turtle Creek and tributaries; the removal of buildings and stone walls; and the alterations of numerous utility lines and structures.

Since the project was completed and cleaned-out with Federal disaster funds following the June 1972 flooding and turned over to local interests on December 13, 1972, no sediment removal work has been accomplished by the local authority to date. Consequently, the flood height reducing capabilities have significantly deteriorated due to the accumulation of silt deposits. In effect, particularly through the lower reaches of the project below Thompson Run, the Turtle Creek channel improvement project can no longer contain the 100-year flood (16,800 cfs) as indicated by the National Flood Insurance Program through the communities of East Pittsburgh, Turtle Creek, and North Versailles Township.

In addition, deficiencies also still exist in other reaches of both Turtle Creek and Thompson Run. They include sedimentation, wild growth, eroded side slopes and damaged access ramps. Debris basins on Dirty Camp Run, Ardmore Boulevard and Thompson Run are completely filled in with sediment. Further, the drop structures on Thompson Run cannot serve their intended purpose due to the sediment buildup immediately below each drop structure.

JUSTIFICATION: Project conditions have changed to the point where flood hazard conditions are no longer as represented by project design and in the National Flood Insurance Program. The changed flood hazard conditions are documented by the periodic project inspections and a sediment monitoring program in the lower 8,800 feet of the Turtle Creek channel, below Thompson Run, from 1975 through 1982. During this period, the Corps has taken 38 cross sections annually and computed the volume of sediment buildup in the channel. Using this detailed data, the total volume of sediment deposition which has accumulated over and above "As Built" conditions has been estimated to be almost 100,000 cubic yards in this reach alone. Annual inspections indicate no change or improvement in this severe sediment problem. In addition, hydrologic analyses have highlighted significant flood hazard changes. The cumulative total of flood damages prevented by the project since completion are estimated to be over $82,650,000 through Fiscal Year 1989.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Channel Construction	$1,347,000
Planning, Engineering and Design	23,000
Construction Management	91,000
Total	$1,461,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	First Cost	Annual Cost
Provide lands, easements, and rights-of-way	$ 0	
Pay a cash contribution of 25 percent of the cost allocated to flood control and bear all cost of operation, maintenance, and replacements.	650,000	$260,000
Total	$650,000	$260,000

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STATUS OF LOCAL COOPERATION: The Turtle Creek Flood Control Authority was the local sponsor for the existing project. However, they are not financially able to sponsor the project restoration, nor to subsequently perform any required project maintenance. Consequently, the District has coordinated with other levels of Government, and in the process, has been advised by Allegheny County, Pennsylvania Board of Commissioners, that the County will sponsor the project. Preliminary confirmation by letter was received on 30 March 1988.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $17,301,000 has not changed from the latest estimate presented to Congress (FY 1990).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: If the proposed action is found to be subject to the provisions of Section 404 of the Clean Water Act, a Section 404(b)(1) Evaluation will be completed during preparation of the Design Memorandum, first quarter of FY 1990. The Section 404 provisions will be satisfied by preparing the Section 404(b)(1) Evaluation, issuing a Public Notice, obtaining State Certification and signature of the District Commander on the Design Memorandum in the first quarter of FY 1990.

OTHER INFORMATION: The original project was constructed during the period 1962-1967 at a Federal cost of $15,351,000.

Division: Ohio River District: Pittsburgh Turtle Creek, PA

29 JAN 1990

APPROPRIATION TITLE: Construction General - Local Protection (Flood Control)

PROJECT: Levisa and Tug Forks of the Big Sandy River and Upper Cumberland River, West Virginia, Virginia and Kentucky (Continuing)

LOCATION: Levisa and Tug Forks are situated in southwestern West Virginia, southeastern Kentucky, and western Virginia. The two streams converge at the twin towns of Ft. Gay, West Virginia, and Louisa, Kentucky, to form the Big Sandy River. The Levisa Fork Basin encompasses about 2,326 square miles. The project area includes the mainstem Levisa Fork from Louisa, Kentucky, to Grundy, Virginia (approximately 100 stream miles excluding Fishtrap Lake) and the mainstem Russell Fork from its confluence with the Levisa Fork, to and including Haysi, Virginia (approximately 31 stream miles). The Tug Fork Basin encompasses about 1,555 square miles. The project area is comprised of approximately 140 stream miles from Louisa, Kentucky to Welch, West Virginia. The Upper Cumberland River Basin encompasses about 1,977 square miles. About 132 stream miles of the Cumberland River from its origin at Harlan, Kentucky, to Cumberland Falls, are included in the project.

DESCRIPTION: The plan for the Levisa and Tug Forks of the Big Sandy River and the Upper Cumberland River, West Virginia, Virginia and Kentucky project includes the construction of levees, floodwalls and pump stations, a flood control reservoir, the floodproofing and evacuation of structures located in the flood hazard areas, and development of relocation sites for the affected areas.

AUTHORIZATION: Energy and Water Development Appropriation Act of 1981 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable. 1/

TOTAL BENEFIT-COST RATIO: Not Applicable. 1/

INITIAL BENEFIT-COST RATIO: Not Applicable. 1/

BASIS OF BENEFIT-COST RATIO: Not Applicable. 1/

1/ An overall project benefit-cost ratio was not computed because the Energy and Water Development Appropriations Act, 1981, found that the benefits attributable to the flood control measures authorized by the Act exceed their costs.

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SUMMARIZED FINANCIAL DATA

Estimated Total Federal Cost			$764,000,000
Scheduled Construction		$380,980,000	
Unscheduled Construction		383,020,000	
Estimated Total Non-Federal Cost			$42,250,000
Scheduled Construction		$18,100,000	
Cash Contribution	$18,100,000		
Other Costs	0		
Unscheduled Construction		24,150,000	
Cash Contributions	24,150,000		
Other Costs	0		
Total Estimated Scheduled Construction Cost			$399,080,000
Total Estimated Unscheduled Construction Cost			407,170,000
Total Estimated Project Cost			$806,250,000

		Accum. Pct. of Est. Fed. Cost
Allocation to 30 September 1989	$216,045,000	
Conference Allowance for FY 1990	51,300,000	
Allocation for FY 1990	54,731,000 1/	
Allocations through FY 1990	270,776,000	34
Allocation Requested for FY 1991	36,800,000	40
Scheduled Balance to Complete after FY 1991	73,404,000	
Unscheduled Balance to Complete after FY 1991	383,020,000	

1/ FY 1990 allocation reflects $2,166,000 reduction assigned as savings and slippage, $635,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $6,232,000 reprogrammed to the project,.

STATUS (1 JAN 1990)	PERCENT COMPLETE (PHYSICAL)	COMPLETION SCHEDULE
Structural Measures		
Williamson, WV	77	Nov 1992
Matewan, WV	7	Apr 1996
South Williamson, KY	10	Dec 1994
Haysi Dam VA	0	Indefinite 1/
Barbourville, KY (Cutoff)	100	
Pineville, KY	90	Sep 1990
Barbourville, KY (Levee/Fldwall)	13	Unscheduled
Harlan, KY	2	Unscheduled
Other Detailed Studies		
Tug Fork		
Matewan, WV	100	
South Williamson, KY	100	
Lower Mingo Co., (Kermit), WV	80	Sep 1990
Martin Co., KY	2/	
Lower Pike Co., KY	2/	
McDowell Co., WV	2/	
Upper Mingo Co., WV	2/	
Upper Pike Co., KY	2/	
Wayne Co., WV	2/	
Lawrence Co., KY	2/	
Tug Fork Tributaries	2/	
Tug Fork GDM	100	
Upper Tug Fork (Above Welch)	2/	
Project Coordination	2/	

STATUS (1 JAN 1990)	PERCENT COMPLETE (PHYSICAL)	COMPLETION SCHEDULE
Other Detailed Studies		
Levisa Fork		
Grundy, VA	2/	
Levisa Basin/Haysi Dam	2/	
Lower Pike Co., KY	2/	
Upper Pike Co., KY	2/	
Lower Floyd Co., KY	2/	
Upper Floyd Co., KY	2/	
Johnson Co., KY	2/	
Dickenson Co., VA	2/	
Lawrence Co., KY	2/	
Slate Creek, Grundy, VA	2/	
Upper Cumberland		
Harlan	2/	
Williamsburg	2/	
Middlesboro	2/	
Cumberland	2/	
Upper Cumberland Rv Basin	2/	
Clover Fork	2/	
Nonstructural Measures		
Williamson, WV	91	Sep 1990
Matewan, WV	34	Jul 1995
South Williamson, KY	34	Sep 1996
Lower Mingo (Kermit), WV	1	Indefinite 1/
Grundy, VA	0	Indefinite 1/
Pineville, KY	73	Sep 1990
Harlan, KY	10	Unscheduled
Barbourville, KY	16	Unscheduled

1/ Completion is indefinite pending submission and approval of Special Project Report.

Division: Ohio River District: Huntington/Nashville

Levisa and Tug Forks of the Big Sandy River and Upper Cumberland River, WV, VA, and KY

29 JAN 1990

STATUS (1 JAN 1990) (Cont'd)

2/ Completion is indefinite pending submission and Washington level processing of the Lower Mingo Co. (Kermit), WV report, which will incorporate the latest formulation, cost sharing and estimating requirement. Remaining other detailed studies will then be reevaluated and revised.

PHYSICAL DATA

WILLIAMSON AREA

Williamson (CBD) Floodwall
Height - 22 feet (average)
Length - 3,900 feet
Pump Stations - 2 (30,000 and 70,000 GPM)

Lands and Damages
Acres - 19.29-Fee
4.64-Easement
Type - Urban

West Williamson Floodwall
Height - 17 feet (average)
Length - 6,237 feet
Pump Stations - 1 (40,000 GPM)

Lands and Damages
Floodwall Acres-25.29-Fee
38.08-Easement
Type - Urban

Snagging and Clearing
Length - 2.3 miles

Lands and Damages
Acres - 80.05
Type - Riverbank

MATEWAN

Fill/Wall
Height - 13 feet (ave)
Length - 2,500 feet
Pump Stations - 1 (8,000 GPM)

Relocations
Hwy 49 and Bridge; Rt. 9; Fire station; Town Hall; and utilities
Lands and Damages
Acres - 45.41 - Fee
50 - Easement
Type - Urban

SOUTH WILLIAMSON

Floodwall
Height - 21 feet
Length - 2,700 feet
Pump Stations - 1 (12,000 GPM)

Lands and Damages
Acres - 13.27 - Fee
7.51 - Easement
Type - Residential

PINEVILLE

Pineville Highway/Levee/Floodwall
Height - 25 feet (average)
Length - 7,800 feet

Relocations
Wallsend Bridge
Pine Street Bridge
Lands & Damages
Acres - 118
Type - Urban

Wallsend Levee
Height - 25 feet
Length - 4,300 feet

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Division: Ohio River

District: Huntington/Nashville

29 JAN 1990

Levisa and Tug Forks of the Big Sandy River and Upper Cumberland River, WV, VA, and KY

27-138 O—90—19

PHYSICAL DATA (Cont'd)

HAYSI DAM

Dam: Type - Concrete Gravity
Height - 184 feet
Length - 630 feet

Spillway: Type - Uncontrolled Ogee Weir
Length - 150 feet
Design Discharge - 120,000 c.f.s.

Lands and Damages:
Acres - 6,350 Fee
Type - Rural residential and subsistence farms

Improvements-Predominantly farm buildings and residential

Reservoir Capacity-Net Acre-Feet

Sediment Reserve	9,030
Conservation	2,410
Flood Control Pool	31,300

Outlet Works:
Type - 5-Sluice Gate
Size - 4 ft. x 4 ft.

Relocations:
Roads & Utilities - $4,040,000

BARBOURVILLE

Cutoff
Type - High flow diversion
Dimensions - 150 feet bottom width
- 40 feet maximum depth
Length - 5,000 feet

Acres - 55
Type - Agricultural

Levee/Floodwall
Height - 26 feet (average)
Length - 19,536 feet

Lands and Damages
Acres - 11
Type - Urban
Relocations
Highway 459 Bridge

HARLAN

Harlan Diversion
Length - 2,000 feet

Lands and Damages
Acres - 12
Type - Urban
Relocations
KY Hwy 38 Bridge
KY Hwy 72 Bridge

Loyall Diversion
Length- 3,800 feet
Max. Depth - 300 feet

Lands and Damages
Acres - 33
Type - Urban
Relocations
KY Hwy 840 Bridge

Levees/Floodwalls (Four locations)
Length - 14,000 feet
Height - 23 feet (average)

Division: Ohio River

District: Huntington/Nashville

29 JAN 1990

Levisa and Tug Forks of the Big Sandy River and Upper Cumberland River, WV, VA, and KY

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NON-STRUCTURAL - Primarily voluntary relocations from flood prone areas and floodproofing of unprotected developments suitable for such measures. Specific physical data will be determined during preparation of project reports for each individual project.

OTHER DETAILED STUDIES - Advance planning will continue at other locations in the authorized planning area to determine the extent of flood problems & to formulate implementable solutions to these problems.

JUSTIFICATION:

Tug Fork - Historically, persistent repetitive flooding in the Tug Fork Valley has brought extensive damage to homes, and other cultural developments. During the past 35 years, major floods occurred in January 1957, March 1963, March 1967, April 1977, and May 1984. The 1977 flood was the flood of record along much of the Tug Fork. This devastating flood caused valley-wide damages approaching $200 million on a 1977 price level. Six hundred homes were totally destroyed and 4,700 homes were flooded. Physical losses from direct damage to non-residential buildings and contents exceeded $41 million. Over half of all damages occurred in Mingo County, West Virginia. Pike County, Kentucky had about $45 million. The recent May 1984 flood resulted in an estimated $117 million in damages along the Tug Fork. As in previous floods, the extensive bituminous coal mining industry of the basin was disrupted due to direct damage, interrupted transportation, and lost time because of diversions of the work force to flood fighting and clean-up.

Levisa Fork - Basically, the same persistent repetitive type flooding characteristic of the Tug Fork has plagued the Levisa Fork area. During the April 1977 flood, damage amounted to about $93 million, as measured in 1977 price levels. The May 1984 flood caused an additional $90 million in losses along the mainstem of the Levisa Fork, and its primary upstream tributary, Russell Fork. Impacts on residential properties, commercial and transportation facilities, and the mining industry were similar to those described in the Tug Fork areas.

Upper Cumberland - Flooding continues to bring recurring damage to the Upper Cumberland area. Total damages in all categories amounted to $34.7 million for this area during the April 1977 event. The Pineville project will protect about185 acres of urban property and protected structures valued at $25.7 million. At Barbourville, the existing project was sandbagged during the April 1977 flood event preventing major losses to some 700 acres of urban land containing structures valued at $52.4 million. The presently unprotected area is a mix of agriculture/urban land use and contains structures valued at over $6.0 million. During the 1977 flood, no area of Harlan County escaped damage; four persons drowned. Approximately 1,800 were left homeless. Total flood damage and associated costs came to almost $31 million.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Structural Measures	
Williamson, WV	
Continue Williamson CBD Floodwall & Pump Station	$9,734,000
Construction Management	122,000
Subtotal	$9,856,000
Matewan, WV	
Continue Land Acquisition	$3,500,000
Continue Relocations	1,300,000
Engineering and Design	3,100,000
Construction Management	270,000
Subtotal	$8,170,000
South Williamson, KY	
Continue Land Acquisition	$2,400,000
Continue Relocations	219,000
Engineering and Design	350,000
Construction Management	86,000
Subtotal	$3,055,000
Other Detailed Studies	
Huntington	
Grundy, VA	$204,000
Upper Mingo Co., WV	395,000
Levisa Basin/Haysi Dam	96,000
Upper Pike Co., KY	55,000
Lower Pike Co., KY	195,000
Subtotal	$945,000

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Other Detailed Studies	
Nashville	
Middlesboro	$280,000
Cumberland	50,000
Clover Fork	360,000
Subtotal	$690,000
Project Coordination	$40,000
Nonstructural Measures	
Williamson, WV	
Complete Land Acquisition	$100,000
Subtotal	$100,000
Matewan, WV	
Continue Land Acquisition	$3,500,000
Continue Relocations	1,800,000
Engineering and Design	25,000
Construction Management	375,000
Subtotal	$5,700,000
South Williamson, KY	
Continue Land Acquisition	$6,000,000
Continue Relocations	2,200,000
Engineering and Design	14,000
Construction Management	30,000
Subtotal	$8,244,000
Total	$36,800,000

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NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Bear all costs of operation, maintenance, and replacement of flood control facilities.		
Williamson and West Williamson, WV	0	$71,000
South Williamson, KY	0	8,000
Pineville, KY	0	15,000
Barbourville, KY	0	20,000
Harlan, KY	0	20,000
Total Non-Federal Cost	0	$134,000

In cooperation with the Commonwealth of Kentucky, an integrated highway/floodwall project is being constructed for Pineville, Kentucky. The plan provides flood protection for Pineville and Wallsend communities in conjunction with a four-lane improvement to U.S. Highway 25E through Pineville.

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STATUS OF LOCAL COOPERATION: Requirements - As set forth in Section 202 (a) of The Energy and Water Development appropriation Act of 1981, the non-Federal interests are responsible for the operation and maintenance of all works constructed under this authority.

Current status - The City of Barbourville signed a 221 Agreement on 14 February 1984 and agreed to accept the role as project sponsor for operation and maintenance of the project after construction is complete.

The City of Pineville signed a 221 Agreement on 19 February 1983 and agreed to accept the role as project sponsor for operation and maintenance of the project after construction is complete. The Corps and the Commonwealth of Kentucky have executed a cost-sharing arrangement for the combined flood protection/four-lane highway project at Pineville.

The County of Harlan signed a 221 Agreement on 20 October 1988, and agreed to accept the role as project sponsor for operation and maintenance of the project after construction is complete.

Mingo County, West Virginia, signed a 221 Agreement on 2 March 1983 and agreed to act as project sponsor for operation and maintenance. The City of Williamson and Mingo County have agreed to enter into a sub-agreement transferring certain responsibilities to the City. Pike County, Kentucky, signed a 221 Agreement on 1 August 1983 agreeing to act as non-Federal sponsor for features of the project within its jurisdiction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $764,000,000 is a increase of $42,300,000 from the latest estimate ($721,700,000) presented to Congress (FY 1989). This change includes the following items.

Item	Incremental Change
Adjustments in the Estimated Allowance for Future Inflation	$10,588,000
Post-Contract Award and Other Estimating Adjustments	33,203,000
Price Deescalation for Real Estate	-1,491,000
Total	$42,300,000

OTHER INFORMATION: Funds to initiate construction were allocated in FY 1981. The Urgent Supplemental Appropriations Act for FY 1984 (PL 98-332) provided $21,000,000 for nonstructural measures at this project. The Water Resources Development Act of 1986 authorized implementation of Harlan, KY and Barbourville, KY at full Federal expense. Projects under construction prior to April 30, 1986 are exempted from cost sharing in accordance with the Water Resources Development Act of 1986 (WRDA 1986). They are Williamson, South Williamson, Matewan and Pineville. Harlan and Barbourville were exempted from cost sharing by Title I, Sec. 103 of WRDA 1986. Cost sharing is required for all remaining projects.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Stonewall Jackson Lake, West Virginia (Continuing)

LOCATION: The project is located in Lewis County, northern West Virginia, on the West Fork River, which joins the Tygart River at Fairmont, West Virginia, to form the Monongahela River. The dam site is located at Brownsville, West Virginia.

DESCRIPTION: The Stonewall Jackson Lake Project is a multiple water resource project with a tributary drainage area of 102 square miles. The dam is a concrete gravity type, 620 feet in length and 95 feet high above the streambed. It has a gross controlled storage of 74,650 acre-feet which includes 45,050 acre-feet allocated for water supply, water quality and recreation, 26,480 acre-feet (summer) and 38,550 acre-feet (winter) for flood control, and 3,120 acre-feet permanent storage.

AUTHORIZATION: Flood Control Act of 1966 as amended by the River Basin Monetary Authorization Act of 1971 (P.L. 92-222) and the Water Resources Development Act of 1974.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 5.5 to 1 at 4-5/8 percent. The ratio is based on Stonewall Jackson Lake functioning independently in the West Fork River Basin and as the last added increment to the existing reservoir system in the Monongahela River Basin as of 1970. Minor benefits which will accrue on the Ohio River have not been included in the benefit-cost ratio.

TOTAL BENEFIT-COST RATIO: 1.9 to 1 at 4-5/8 percent.

INITIAL BENEFIT-COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial land acquisition funds was 1.7 to 1 at 3 1/4 percent (FY 1970).

BASIS OF BENEFIT-COST RATIO: Based on General Design Memorandum, dated January 1971 with costs at July 1970 price level.

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SUMMARIZED FINANCIAL DATA			ACCUM. % OF EST. FED. COST	STATUS: (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimate Total Appropriation Requirement		$231,000,000		Entire Project	87	Mar 1992 2/
Future Non-Federal Reimbursement	$23,180,000					
Estimated Federal Cost (Ultimate)		201,840,000				
Estimated Non-Federal Cost Reimbursement:		29,160,000				
Water Supply	4,350,000					
Recreation	24,810,000					
Total Estimated Project Cost		231,000,000				
Allocations to 30 Sep 1989		202,335,000				
Conference Allowance for FY 1990		13,434,000				
Allocation for FY 1990		15,305,000 1/				
Allocation thru FY 1990		217,640,000		94		
Allocation Requested for FY 1991		1,000,000		95		
Scheduled Balance to Complete after FY 1991		25,000				
Unscheduled Balance to Complete after FY 1991		12,335,000 2/				

1 / FY 1990 Allocation reflects $1,296,000 reduction assigned as savings and slippage, $138,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $3,305,000 reprogrammed to the project.

2/ Remaining recreation facilities are not scheduled pending agreement by the existing cost sharing partner to cost increases to the originally agreed upon recreation program. In the event that the cost sharing partner agrees to the cost increases for the planned recreation facilities, funds will be reprogrammed to the project to continue construction of such facilities.

PHYSICAL DATA

Dam:
- Type-Concrete gravity
- Height-95 feet (above streambed)
- Length-620 feet

Spillway:
- Type-Uncontrolled Concrete gravity ogee
- Length-117 feet
- Capacity (Design Discharge)-27,800 cu. ft. per sec.

Outlet Works
- Type-Gated Sluices; 3 low level, 2 high
- Gates: Slide, 3.5 x 7.0 ft. (lower)
  2.5 x 4.0 ft. (upper)

Reservoir Capacity: Total Storage	74,650 acre-feet
Flood Control	
Summer	26,480 acre-feet
Winter	38,550 acre-feet
Water Supply, Water Quality and Recreation	45,050 acre-feet
Permanent Storage	3,120 acre-feet

Relocations:	
Roads - 25.0 miles	($48,400,000)
Railroad - 3.2 miles	($ 4,450,000)
Utility Lines, Cemeteries & School	($33,360,000)

Lands and Damages: Acres-20,849; Type-Predominantly agricultural and woodland; Improvements-Typical farm and residential units.

JUSTIFICATION: The West Fork River Basin, a headwater area of the Monongahela River Basin, is contained in Barbour, Harrison, Lewis, Marion, Taylor, and Upshur Counties. The basin has a total drainage area of 881 square miles. The area contained in the basin is more populated than the average for the State of West Virginia. Industrial development is based primarily on the extensive coal, gas and oil resources. Coal mining is the most important commercial activity and glass is the chief manufacturing industry. Other important manufacturing industries produce pulp and paper, chemicals, machinery and metal products. The flood history and the flood damages for the West Fork River valley clearly indicate that the valley has a flood problem. The uncontrolled waters also are reflected in flood stages on the Monongahela River. Major flood control benefits would be realized in the flood plains of the West Fork and the upper Monongahela Rivers. The latest major flood in the West Fork River Basin was the November 1985 flood and under natural conditions (without the Stonewall Jackson Lake Project) would have caused damages estimated at $40,490,000 of which about $29,610,000 would be prevented by the completed project. The existing partially completed project prevented damages estimated at $21,370,000. Water quality control features of the project would augment natural stream flow during periods of low flow, providing improvement of water quality beneficial to points downstream on the West Fork River, the Monongahela River throughout its length and, to a minor extent, to locations on the upper Ohio River. Reservoir storage would also be used for future water supply needs for Weston, West Virginia. Recreation would also be an important reservoir feature and substantial benefits would accrue to this project purpose. The average annual benefits are as follows:

JUSTIFICATION (cont'd.):

Benefit	Amount	Benefit	Amount
Flood Control	$ 892,000	Recreation	$ 6,178,000
Water Supply	43,000	Area Redevelopment	276,000
Water Quality Control	1,606,000	Total	$8,995,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Fabricate and install Station Hydropower Unit	$ 650,000
Engineering and Design	100,000
Supervision and Administration	250,000
Total	$1,000,000

The funds requested are required to continue the project during the Budget Year.

NON-FEDERAL COST:

Requirements of Local Cooperation	Reimbursements	Annual Operation Maintenance and Replacement Costs
Pay all costs allocated to municipal water supply and bear all costs of operation maintenance and replacement of municipal water supply facilities, in accordance with Water Supply Act of 1958.	$ 4,350,000	$ 15,000
Contribute in kind or repay (which may be through user fees) with interest, one-half of the separable cost of the project allocated to recreation and fish and wildlife enhancement and bear all costs of operation, maintenance and replacement of recreation and fish and wildlife facilities.	$24,810,000	$457,000
Administer project land and water areas for recreation and fish wildlife enhancement.	N/A	N/A

NON-FEDERAL COST: (cont'd)

Exercise control against the removal of streamflow made available for water quality control.	N/A	N/A
Contribute to the control of pollution of streams subject to low flow augmentation by adequate treatment or other methods of controlling wastes at their sources.	N/A	N/A
Total Non-Federal Costs	$29,160,000	$472,000

STATUS OF LOCAL COOPERATION: The requirements of Section 221 were amended in 1971 to exempt assurances for future demands for water supply pursuant to the Water Supply Act of 1958 from the contractual requirements of the Act. Accordingly, the City of Weston, West Virginia, has provided assurances that it will enter into a water supply contract with the Department of the Army within a period of time which will permit paying out the costs allocated to the water supply storage within the life of the project.

Local cooperation assurances for recreation cost sharing were executed by the Governor and Attorney General of West Virginia on 29 May 1973.

A recreation cost-sharing contract, in accordance with the requirements of the Federal Water Project Recreation Act, P.L. 89-72, was executed by the State of West Virginia on 27 March 1977.

Legislation relieving Stonewall Jackson Lake, WV project of the requirements of Section 221, P.L. 96-61 was contained in the Water Resources Development Act of 1974 signed by the President on 7 March 1974.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $231,000,000 is an increase of $15,000,000 over the latest estimate (216,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$ 1,045,000
Post Contract Award and Other Estimating Adjustments	13,955,000
Total	$15,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with CEQ on 6 October 1971

OTHER INFORMATION: Funds to initiate preconstruction planning were allocated in FY 1968. Funds to initiate land acquisition were appropriated in FY 1970. The FY 1970 funds were placed in budgetary reserve and allotted in FY 1971. Funds to initiate construction were allocated in FY 1971.

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance (Flood Control)

PROJECT: Senecaville Lake, Muskingum River Lakes, Ohio (Dam Safety Assurance, Continuing)

LOCATION: The project is located in Guernsey County, Ohio on the Seneca Fork of Wills Creek, a tributary of the Muskingum River, 188.0 miles above the mouth of the Muskingum.

DESCRIPTION: The proposed scheme for the Dam Safety Assurance problem involves raising the existing dam embankment and installing a parapet wall on the dam top.

AUTHORIZATION: Flood Control Act of 1938.

REMAINING BENEFIT-REMAINING COST RATIO: Not Applicable.

TOTAL BENEFIT-COST RATIO: Not Applicable.

INITIAL BENEFIT-COST RATIO: Not Applicable.

BASIS OF BENEFIT-COST RATIO: Not Applicable.

SUMMARIZED FINANCIAL DATA

			STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$2,450,000	Entire Project	9	Dec 1991
Estimated Non-Federal Cost		0			
Cash Contribution	0				
Other Costs	0				
Total Estimated Project Cost		$2,450,000			

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Division: Ohio River District: Huntington

29 JAN 1990

Senecaville Lake, Muskingum River Lakes, OH (Dam Safety Assurance)

SUMMARIZED FINANCIAL DATA: (cont'd)

		Accum. % of Est. Fed. Cost
Allocations to 30 September 1989	$ 350,000	
Conference Allowance for FY 1990	1,400,000	
Allocation for FY 1990	1,211,000 1/	
Allocations through FY 1990	1,561,000	64
Allocation Requested for FY 1991	835,000	98
Scheduled Balance to Complete after FY 1991	54,000	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA

Increase elevation to 863.8 ft. with embankment fill topped by parapet wall. Other features include vertical extension of spillway approach walls, addition of T-walls to raise height of channel walls, repave SR 574 across top of dam and place guardrail along downstream berm.

1/ FY 1990 allocation reflects $135,000 reduction assigned as savings and slippage, $14,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $40,000 reprogrammed from the project.

JUSTIFICATION: Overall dam safety considerations under application of current engineering criteria reflect inadequate spillway capacities at Senecaville Lake, an item of particular concern in reevaluation of design floods has been the ability of the dam to resist failure when overtopped. Hydrology and hydraulic studies show that failure of the 45-foot high Senecaville Dam could result in major catastrophe. The project was completed in 1936 and is constructed of rolled earth, gravel and rock fill with an impervious core. It has a maximum crest length of 2,350 feet and would be overtopped by approximately 2.1 feet during the revised Spillway flood based on current criteria. The duration of overtopping for this condition would be about 25 hours. Thus, the risk of dam failure under this overtopping condition is extremely high.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Rehabilitation of the Dam	$720,000
Construction Management	115,000
Total	$835,000

NON-FEDERAL COSTS: None.

STATUS OF LOCAL COOPERATION: Not applicable.

Division: Ohio River District: Huntington

Senecaville Lake, Muskingum River Lakes, OH (Dam Safety Assurance)

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal Cost Estimate of $2,450,000 is an increase of $150,000 from the latest estimate ($2,300,000) presented to Congress (FY 1990). This change includes the following items.

Item	Incremental Change
Adjustments in the Estimated Allowance for Future Inflation	$ 30,000
Post-Contract Award and Other Estimating Adjustments	120,000
Total	$150,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement for the Muskingum River Basin was filed with CEQ on 5 July 1977. A separate assessment of the proposed Senecaville work resulted in a FONSI signed by the District Commander in November 1987.

OTHER INFORMATION: The Senecaville Lake, Muskingum River Basin, Ohio Design Memorandum for Correction of Spillway Deficiency was approved by ASA(CW) on 19 July 88, with endorsement by USACE on 13 Oct 88.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation

a. Channels and Harbors

The program request of $1,418,000 provides for the operational requirements of 4 projects. Requirements include: dredging, engineering and design and maintenance supervision and administration on spurs or side channels.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Kentucky				
Big Sandy Harbor	$520,000	$28,000	$1,030,000	FY 89 & 91: Variation in dredging requirements.
Licking River	12,000	13,000	13,000	
Ohio				
Portsmouth Harbor	0	43,000	75,000	Variation in dredging requirements.
West Virginia				
Elk River Harbour	288,000	0	300,000	FY 89 & 91: Variation in dredging requirements.
TOTAL, Channels and Harbors	$820,000	$84,000	$1,418,000	

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (cont'd)

b. Locks and Dams

The program request of $80,092,000 provides for the operational requirements of 9 projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies and parts for day-to-day functioning; periodic maintenance, repairs and replacements; and contract law enforcement.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Kentucky				
Green and Barren Rivers	$1,297,000	$1,337,000	$1,161,000	FY 89: Bank protection at Lock & Dam 1; install sheet piling at Lock & Dam 6 to maintain pool. FY 90: Bank protection at Lock & Dam 2; replace gratings at lock walls; repair bridge protection cells.
Kentucky River	1,480,000	1,448,000	1,343,000	FY 89: Repair upper guide wall at Lock & Dam 4.
Ohio River Locks and Dams	48,066,000	37,921,000	36,435,000	FY 89: Continue Dashields major rehabilitation at $14,125,000.
(Dashields L&D, PA--Major Rehab)	(14,125,000)	(3,489,000)	(0)	
Ohio River Open Channel Work	4,553,000	2,305,000	4,849,000	FY 89 & 91: Additional dredging, snagging and debris removal requirements.

OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (cont'd)

b. Locks and Dams (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Pennsylvania				
Allegheny River	$7,377,000	$5,771,000	$6,075,000	FY 89: Complete scour repair below Dam 7; fabricate two sets of lock gates; install two haulage units.
Monongahela River	11,863,000	11,208,000	11,675,000	
Tennessee				
Tennessee River	17,051,000	12,000,000	11,049,000	FY 89: Major lock repairs at Wilson auxiliary lock; replace lock lighting at Watts Bar and Ft. Loudon; replace handrails at Kentucky Lock; dewater Ft. Loudon lock.
West Virginia				
Kanawha River	5,045,000	6,886,000	6,590,000	FY 90: Install stoney gate valve operating machinery at Marmet L&D. FY 91: Repair lower guide wall at Marmet L&D.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (cont'd)

b. Locks and Dams (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
West Virginia (cont'd)				
Tygart Lake	$700,000	$747,000	$915,000	FY 91: Replace vehicles; repair liner plates in sluices; replace roof on West Pier Building; concrete repairs.
TOTAL, Locks and Dams	$97,432,000	$79,623,000	$80,092,000	
TOTAL--NAVIGATION	$98,252,000	$79,707,000	$81,510,000	

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control

a. Reservoirs

The program request of $54,269,000 provides for the operational requirements of 71 flood control projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; periodic maintenance, repairs, and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Indiana				
Brookville Lake	$568,000	$566,000	$534,000	
Cagles Mill Lake	377,000	415,000	604,000	FY 90: Boundary rectification. FY 91: Repairs to permanent operating equipment; land acquisition to resolve encroachments.
Cecil M. Harden Lake	707,000	554,000	644,000	FY 89: Boundary monumentation . FY 91: Land acquisition to resolve encroachments; boundary monumentation.
Huntington Lake	495,000	475,000	505,000	
Mississinewa Lake	456,000	517,000	450,000	FY 90: Left bank and channel repairs.
Monroe Lake	624,000	479,000	929,000	FY 89: Boundary rectification. FY 91: Land acquisition to resolve encroachments.
Patoka Lake	433,000	456,000	478,000	

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Indiana (cont'd)				
Salamonie Lake	$422,000	$437,000	$466,000	
Kentucky				
Barren River Lake	1,352,000	1,306,000	1,098,000	FY 89: Pave roads; repairs to permanent operating equipment. FY 90: Repair bulkhead and hydraulic line.
Buckhorn Lake	724,000	741,000	718,000	
Carr Fork Lake	916,000	962,000	846,000	FY 90: Repair Little Carr sedimentation dam; cultural resources inventory; modernize bathhouse at Irish Creek.
Cave Run Lake	516,000	624,000	535,000	FY 90: Install dam instrumentation.
Dewey Lake	952,000	1,028,000	927,000	FY 90: Dam safety assurance study.
Fishtrap Lake	966,000	937,000	1,028,000	
Grayson Lake	628,000	649,000	717,000	FY 91: Install automatic instrumentation; replace project vehicle.

OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Kentucky (cont'd)				
Green River Lake	$946,000	$1,148,000	$1,251,000	FY 90: Repair cutoff at Lock & Dam 6; bank protection at Lock & Dam 1. FY 91: Pave roads.
Martins Fork Lake	603,000	600,000	573,000	
Nolin Lake	1,224,000	1,151,000	1,298,000	FY 91: Boundary monumentation; repairs to cathodic protection system.
Paintsville Lake	623,000	653,000	723,000	FY 91: Reconstruct stream gage station; update master plan.
Rough River Lake	1,529,000	1,118,000	1,599,000	FY 89: Boundary rectification land payments; pave roads. FY 91: Boundary monumentation; land acquisition to resolve encroachments.
Taylorsville Lake	626,000	694,000	674,000	
Yatesville Lake	0	142,000	661,000	FY 90: Project began operation. FY 91: First full year of project operation.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Ohio				
Alum Creek Lake	$495,000	$520,000	$519,000	
Berlin Lake	1,522,000	1,577,000	2,336,000	FY 91: Concrete repairs of bridge; pave roads; sewage treatment plant modifications.
Caesar Creek Lake	666,000	695,000	739,000	
Clarence J. Brown Dam and Reservoir	450,000	463,000	479,000	
Deer Creek Lake	378,000	355,000	373,000	
Delaware Lake	527,000	555,000	777,000	FY 91: Replace transformer platform at pump station; install automated instrumentation.
Dillon Lake	427,000	361,000	434,000	FY 89: Update water control manual. FY 91: Resurface access roads.
Michael J. Kirwan Dam & Reservoir	736,000	580,000	736,000	FY 89: Install piezometers; rehabilitate expansion joints. FY 91: Cultural resources investigation; drought contingency plan; pave road.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Ohio (cont'd)				
Mosquito Creek Lake	$822,000	$648,000	$794,000	FY 89: Update master plan; replace deteriorated metal in gate recesses. FY 91: Seal roads and parking areas; provide handicapped pier; replace septic system.
Muskingum River Lakes (Muskingum River Lakes, OH--Dam Safety	4,222,000 (200,000)	3,421,000 (75,000)	5,384,000 (920,000)	FY 89: Remove underground storage tank. FY 91: Continue dam safety assurance studies; prepare drought contingency plan.
North Branch of Kokosing River Lake	154,000	153,000	177,000	FY 91: Prepare master plan supplement.
Paint Creek Lake	504,000	452,000	471,000	
Tom Jenkins Dam	243,000	351,000	326,000	FY 90: Repave roadway across dam and parking area; purchase water control data system equipment. FY 91: Prepare drought contingency plan.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Ohio (cont'd)				
West Fork Mill Creek Lake	$305,000	$404,000	$371,000	FY 90: Periodic inspection; replace stream gage equipment. FY 91: Periodic inspection; boundary inspection.
William H. Harsha Lake	473,000	589,000	586,000	FY 90: Update master plan; periodic inspection. FY 91: Sedimentation survey; water quality tests.
Pennsylvania				
Conemaugh River Lake	870,000	988,000	1,140,000	FY 90: Sedimentation study; concrete repairs at dam. FY 91: Reservoir snagging and clearing.
Crooked Creek Lake	1,380,000	1,168,000	1,390,000	FY 89: Repair spillway. FY 91: Install picnic pavillions; concrete repairs at training wall and sluice bulkhead wall; sedimentation surveys; dewater stilling basin; repair main gate hoist cable.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

Project	OBLIGATIONS Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Pennsylvania (cont'd)				
East Branch Clarion River Lake	$805,000	$1,067,000	$777,000	FY 90: Bank stabilization; update master plan.
Kinzua Dam & Allegheny Reservoir	1,134,000	1,119,000	1,464,000	FY 91: Geotechnical drilling, sampling and piezometer installation; gage well repairs; clean and seal roadway and monolith joints.
Loyalhanna Lake	881,000	939,000	1,038,000	FY 91: Repair bulkhead bypass lines; improvements to Alexandria Boat Ramp.
Mahoning Creek Lake	721,000	728,000	680,000	
Shenango River Lake	1,813,000	1,787,000	2,017,000	FY 91: Repair gabion wall; seal access roads.
Tionesta Lake	1,310,000	1,214,000	1,103,000	FY 89: Rehabilitate spillway recreation area. FY 90: Replace guardrail; reconstruct road to spillway.
Union City Lake	246,000	302,000	308,000	FY 90: Roadway repairs. FY 91: Complete master plan.
Woodcock Creek Lake	770,000	688,000	803,000	FY 89: Sealing and pump station repairs; roadway repairs; purchase vehicle. FY 91: Drought contingency plan; install handicapped fishing pier.

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29 JAN 1990

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Pennsylvania (cont'd)				
Youghiogheny River Lake	$2,266,000	$1,420,000	$2,036,000	FY 89: Concrete repairs of tunnel and airshaft; replace bridges at Mill Run and Tub Run; drought contingency plan; rewire control tower gate crane; sedimentation study. FY 91: Modify boat launches and erosion control at spillway; bank stabilization.
Virginia				
John W. Flannagan Dam & Reservoir	936,000	897,000	1,024,000	FY 91: Periodic inspection and reporting; purchase water control data system equipment.
North Fork of Pound River Lake	267,000	316,000	299,000	FY 90: Drought contingency plan. FY 91: Periodic inspection and reporting.
West Virginia				
Beech Fork Lake	730,000	623,000	689,000	FY 89: Periodic inspection and reporting. FY 91: Prepare drought contingency plan.
Bluestone Lake	991,000	1,200,000	982,000	FY 90: Dam safety assurance study.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
West Virginia (cont'd)				
Burnsville Lake	$1,206,000	$989,000	$1,015,000	FY 89: Electrification of Bulltown Campground.
East Lynn Lake	919,000	921,000	1,059,000	FY 91: Repair and repave road; replace project vehicles.
R. D. Bailey Lake	1,184,000	1,060,000	1,337,000	FY 89: Drift removal. FY 91: Replace project vehicles.
Stonewall Jackson Lake	749,000	727,000	872,000	FY 91: Dewater stilling basin.
Summersville Lake	1,045,000	907,000	1,151,000	FY 89: Repair valves. FY 91: Purchase patrol boat.
Sutton Lake	1,296,000	1,203,000	1,325,000	FY 91: Renovation of Bee Run Beach.
TOTAL, Reservoirs	$49,130,000	$47,039,000	$54,269,000	

OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

b. Channel Improvements, Inspection and Miscellaneous Maintenance

The program request of $480,000 provides for the annual and periodic maintenance requirements of 7 local protection projects and the inspection of 140 completed works during the budget year.

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Kentucky				
Middlesboro	$59,000	$125,000	$37,000	FY 89: Clearing, snagging and brush removal. FY 90: Restore slide area.
Ohio				
Massillon	10,000	19,000	20,000	FY 90 & 91: Variation in channel maintenance.
Newark	16,000	0	0	FY 89: Final year of Federal responsibility for project operation and maintenance.
Roseville	20,000	19,000	20,000	
Pennsylvania				
Johnstown	235,000	19,000	6,000	FY 89: Concrete slope lining repair. FY 90: Complete concrete slope lining repair.
Punxsutawney	1,000	237,000	5,000	FY 90: Clear channel side slopes and remove channel deposits.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

b. Channel Improvements, Inspection and Miscellaneous Maintenance (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
West Virginia				
Elkins	$4,000	$16,000	$5,000	FY 90: Clear debris and brush from channel banks. FY 91: Additional inspection.
Inspection of Completed Works	288,000	272,000	387,000	FY 91: Increased inspection required.
Inspection of Non-Federal Levees	13,000	7,000	0	FY 89 & 90: Activity transferred to the Flood Control and Coastal Emergencies Appropriation in FY 89. FY 89 & 90 funds were carried over from FY 88.
TOTAL, Channel Improvements, Inspection & Miscellaneous Maintenance	$646,000	$714,000	$480,000	
TOTAL--FLOOD CONTROL	$49,776,000	$47,753,000	$54,749,000	

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GUNTERSVILLE RESERVOIR

Mr. BEVILL. General, will you update the committee on the status of the aquatic plant management program at Guntersville Reservoir which you are undertaking in cooperation with the Tennessee Valley Authority?

General CHINEN. The aquatic weeds problem at Guntersville is well in hand. We are in full cooperation, the Ohio River Division's Nashville District, with TVA and the Waterways Experiment Station, to get that project underway.

The Waterways Experiment Station is doing the bulk of the research components and TVA is responsible for the operational controls.

Mr. BEVILL. Are there areas other than the Guntersville Reservoir that are affected by this problem?

General CHINEN. Guntersville Lake is the lake most heavily infested with aquatic weeds. However, the weeds have gone downstream. They have gone downstream all the way to Pickwick and there is an indication that they may go as far as Kentucky Lake and Lake Barkley.

Mr. BEVILL. Thank you. The Chair recognizes Mr. Myers.

Mr. MYERS. Thank you, Mr. Chairman. Thank you, General. We are pleased to see you and your staff here. The congressional district that I have the privilege of representing in Indiana is almost entirely within the Ohio River Division. There are a few townships that go into the North Central Division. Other than that, it is within your area. I thank you for the assistance we have received. A number of communities have asked for help and advice. I must say that in past years it has not always come forth, but in the past year it has and we appreciate that and thank you for that cooperation. I have a number of questions but I will only ask a few of them this morning. We have a lot of work to do because of the necessity to cancel the hearing scheduled for yesterday. I am sorry we had to.

FEATHER CREEK, CLINTON, INDIANA

One of the projects that has been experiencing local flooding is Clinton, north of Terre Haute. What can you tell us about the Feather Creek and Clinton project?

General CHINEN. The Feather Creek Project in Clinton, Indiana, that is one of our Continuing Authorities Programs, it is in the feasibility phase. It looks good since we will have a cost sharing sponsor.

Mr. MYERS. Don't you have one, in the City of Clinton?

General CHINEN. The City of Clinton indicated they would like to cost share that project.

Mr. MYERS. Has there been any attempt to get them to sign an agreement? What is the status with the City of Clinton?

General CHINEN. They have indicated a willingness to support this project, but at this time they have not actually signed on.

Mr. MYERS. No letter of intent?

General CHINEN. No, but I don't expect any problem.

Mr. MYERS. Have they been asked for a letter of intent?

General CHINEN. Yes, they have.

TERRE HAUTE, INDIANA

Mr. MYERS. In Terre Haute the mayor came into our office the other day and was asking about the possibility of doing something similar to the work you did to help the City of Lafayette, which is also in my district. Terre Haute, especially West Terre Haute, is one of the few urban areas in my district that has a flooding problem. They have experienced it at various times in the past. They are interested in maybe combining some type of construction in the river, creating a pool and providing flood control. Has the County of Vigo in Indiana requested any assistance?

General CHINEN. We are aware of assistance requests. As you know, we have a reconnaissance study initiating this year to be completed in 1991. We will be able to incorporate that request into the reconnaissance study.

OLMSTED LOCKS AND DAM

Mr. MYERS. You spoke about the Olmsted project on the Ohio, replacing Locks and Dams 52 and 53. As we know, a lot of coal, petroleum and grain passes through those locks. What can you tell us about the progress on replacing 52 and 53 with Olmsted.

General CHINEN. The preconstruction engineering and design for the Olmsted Locks and Dam to replace 52 and 53, is coming along very well. The intention is to initiate construction in the 1992 time frame.

Mr. MYERS. What about land acquisition?

General CHINEN. We do not have an approved capability to initiate real estate acquisition.

Mr. MYERS. What would stop land acquisition if we should put money in for it?

General CHINEN. As I indicated, we do not have an approved capability. However, if we were so directed we could begin land acquisition in fiscal year 1991 utilizing an additional $400,000, but this would not advance completion of the project.

Mr. MYERS. Your request this year is for design funds, is that sufficient to complete the design or could you use additional funds to advance your design effort?

General CHINEN. The requested funds will allow us to complete preconstruction engineering and design. Although we do not have an approved capability, if so directed, we could use additional design funds in the amount of $3.1 million to complete the lock design memorandum and initiate plans and specifications for lock construction. These additional funds would advance design work that would normally be done during construction.

Mr. MYERS. It seems like we have been putting a lot of money into this project, but it has not moved as rapidly as some of us feel it should have. Have there been some technical problems that prevent it from moving along faster or was it the fact that we just could not start new construction?

General CHINEN. I would answer that in two ways: first, Olmsted Locks and Dam is a unique structure.

Mr. MYERS. They are all unique, each one is different.

General CHINEN. This structure will use a hydraulic wicket to allow free flow 58 percent of the time. So it is a unique type of

design. We made the decision this week to go with the hydraulic wicket, a new technology. So we have to wrestle with that technical problem.

Second, we have budgeted our full capability for preconstruction engineering and design for the first construction contract.

Mr. MYERS. That has been approved by higher office?

General CHINEN. Yes, sir.

WABASH RIVER BASIN

Mr. MYERS. I understand. The Wabash River is in my congressional district, and I will be provincial and even parochial for a moment. The problem is that flooding along the Wabash has not been urban flooding. Historically, the perception has been that urban flooding is very, very serious, but with agricultural and rural flooding the response is that you should not have been there in the first place. The losses are just as great to a farmer as they are to the individual who owns a house. But for some reason we have given all the attention to urban flooding. I have been a critic of the fact that the Congress and the Corps have always considered urban flooding as very serious and agricultural flooding as not as serious. I am a river bottom farmer. I get criticized once in a while because I am a river bottom farmer. I had 125 acres that flooded twice last year and each time I lost a crop. That comes off my taxes, the cost of putting that crop out.

The taxpayer loses, but the taxes I would have paid never count. But I get criticized for the fact that I am supporting agricultural flood control because I would be one of the benefactors, since I live along the river, along with thousands of others. Frequently I get criticized since I have a vested interest. I can handle that rap, but anyway, to get back, we do have along the Wabash some agricultural levees. Are there any agricultural levees being built anymore and if so, what is the procedure?

General CHINEN. As you know we have the second reconnaissance study that we have started this year and will complete in 1991. That reconnaissance study has two primary purposes: one is to look at the flooding in the urban areas.

Mr. MYERS. There you go again.

General CHINEN. The second purpose is to look at agricultural flooding areas. So that reconnaissance study will bring out that problem and we will see where we can go from there.

Mr. MYERS. Are any agricultural levees being built anyplace in the United States? Maybe we should ask General Kelly one of these days.

General CHINEN. I am personally not aware of any levees being built.

Mr. MYERS. I know there have not been for a number of years in our area.

General CHINEN. I had a meeting with the Soil Conservation Service in Indiana and they are concerned about maintenance of current levees.

Mr. MYERS. What if I buy a bulldozer and build my own, what would you people say?

General CHINEN. I think it would be a good idea.

Mr. MYERS. You once told me that for irrigation, I could not pump water out of the river. When we complained about erosion, you said it is our river and not your responsibility. General Kelly received another star and he is going to earn it this year. We have some additional questions here. Congressman Regula from Ohio, a Member of the Appropriations Committee but not of this subcommittee, has asked us to ask about the status of Yatesville.

General CHINEN. Yatesville is nearing completion of construction. Currently, it is 83 percent complete with a scheduled completion of September 1992.

Mr. MYERS. I have some other questions that Mr. Regula has offered along with some others I have that you can answer for the record. I appreciate your interest and concern and that of your staff in helping people. Thank you.

[The information follows:]

QUESTIONS FOR THE RECORD FROM MR. MYERS

FEATHER CREEK, CLINTON, INDIANA

Mr. MYERS. What amount is the Corps budgeting in FY 1991 for the Clinton project and how will the funds be used?

General CHINEN. The Continuing Authorities Program is budgeted on a line item basis and not budgeted by specific project identification. Adequate funding has been included in the total to cover detailed engineering and design including plans and specifications and construction. Upon approval of Assistant Secretary of the Army for Civil Works to proceed, funds will be released.

Mr. MYERS. What is the potential starting date for construction of the Clinton project?

General CHINEN. The construction start is contingent upon review and approval of the feasibility report recommendations. Assuming submission of the report by mid-summer 1990 and approval by late summer, construction could be underway by next fall.

VIGO COUNTY, INDIANA

Mr. MYERS. General Chinen, the Corps has two emergency streambank erosion projects under construction in Vigo County, Indiana. How are these projects proceeding?

General CHINEN. Sir, the two projects you are referring to will both be completed by Spring of 1990.

OTTER CREEK, VIGO COUNTY, INDIANA

Mr. MYERS. Please describe the study underway on the old U.S. 41 bridge over Otter Creek in Vigo County.

General CHINEN. The Otter Creek, U.S. 41, Vigo County, Indiana study was initiated in November 1989 to investigate streambank erosion problems along Otter Creek within the city limits of Terre Haute, Indiana. The area of concern is 400 feet long and threatens a major U.S. route maintained by the county. The feasibility study is scheduled for submittal to the Division office in September 1990.

OHIO RIVER, CLARK MARITIME AND SOUTHWIND MARITIME CENTERS

Mr. MYERS. Indiana's commerce relies a great deal on the port facilities on the Ohio River and Lake Michigan. Please update the Committee on the status of studies on sedimentation problems at the Clark Maritime Center and Southwind Maritime Center on the Ohio River?

General CHINEN. Both studies are being accomplished under the Section 107 Continuing Authority for small navigation projects. The Clark Maritime Center study is focusing on alternative solutions to the sedimentation problems affecting the upper one-third of the harbor. The Southwind Maritime Center study is focusing on sedimentation problems with the embayment area at, and in the vicinity of the mouth of McFadden Creek. The reconnaissance phases of both studies are scheduled for completion in November 1990.

INDIANAPOLIS AND MARION COUNTY, INDIANA

Mr. MYERS. Please describe any FY 1991 work that the Corps intends to accomplish in the City of Indianapolis and Marion County, Indiana.

General CHINEN. Local officials are interested in Corps assistance for a variety of flooding problems. Some of these problems could be addressed under the Section 205 Continuing Authority for small flood control projects. If a formal request is received from local officials, Section 205 project studies could be initiated in FY 1990 and continued in FY 1991.

Mr. MYERS. Does the FY 1991 budget request contain sufficient funds to undertake any contemplated work in Indianapolis and Marion County? Please provide the FY 1991 capability for this work.

General CHINEN. There are no funds included in the FY 1991 budget. We have a FY 1991 capability of $500,000 to initiate and complete reconnaissance level studies of critical flood problem areas within the Indianapolis and Marion County area.

Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower Army-wide. In this context, the capability amounts shown consider each project or study by itself without reference to the rest of the prolram. However, it is emphasized that the total amount proposed for the Army's Civil Works program in the President's Budget is the appropriate amount consistent with the Administration's assessment of national priorities for federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that government borrowing is having on the national economy. In order to maintain these overall budgetary objectives, we could only utilize additional funds on individual projects and studies if offsetting reductions were taken.

EVANSVILLE AND JEFFERSONVILLE, INDIANA

Mr. MYERS. Please update the Committee on the status of the following projects in Indiana and provide an FY 1991 capability for each: Evansville (flood control) and Jeffersonville (navigation).

General CHINEN. Yes sir. The Evansville, Indiana project currently under construction is 66 percent complete and is scheduled for completion in August 1994. The Jeffersonville, Indiana, study is the result of an FY 1990 Congressionally directed add-on to initiate a new General Investigations reconnaissance phase study. We have included funds in the FY 1991 budget request to complete this effort in March 1991. Our FY 1991 capability for the Evansville project and Jeffersonville study is the same as the budget requests of $5,100,000 and $127,000 respectively.

OLMSTED LOCKS AND DAM

Mr. MYERS. Please explain why the FY 1991 budget request for work on the Olmsted locks and dam project is contained in the GI account rather than the Construction, General account.

General CHINEN. The reason that the Olmsted Locks and Dam project is contained in the General Investigations account is that this project is being budgeted in FY 1991 for completion of preconstruction engineering and design which is funded from the General Investigations appropriation.

Mr. MYERS. What percentage of the Louisville District's FY 1991 GI budget is dedicated to the Olmsted project?

General CHINEN. The FY 1991 budget request for Olmsted Locks and Dam is 53 percent of the Louisville District's total General Investigation's budget.

Mr. MYERS. Describe the budget, legal, and policy impacts of providing the FY 1991 funds for Olmsted in the Construction, General account rather than the General Investigations account as requested. Please include an explanation of the impact on the Inland Waterways Trust Fund.

General CHINEN. The Olmsted Locks and Dam project was authorized for construction in the 1988 Water Resources Development Act with one-half of the project costs to be paid from the general fund of the Treasury and one-half from the Inland Waterways Trust Fund. The project is budgeted for completion of preconstruction engineering and design (PED) in fiscal year 1991. PED includes preconstruction activities prior to receipt of project construction funds. All engineering, through plans and specifications for construction of a major component or portion of the project scheduled for construction in the first year can be accomplished under PED. In fiscal year 1991, the $3.5 million budgeted for the Olmsted project will be used to prepare feature design memorandums for the lock and tainter gates, construction materials, and foundations; and prepare plans and specifications for the access road. Although the project could legally receive an allocation of Construction, General funds, from a budgetary perspective, the project is not ready for construction in fiscal year 1991, notwithstanding the budget request which recommends no classic new construction starts. There is no objection to the Olmsted project from an overall policy point of view; however, it is Administration policy to only recommend projects as new construction starts when it is convinced that such projects are ready for construction. With respect to the Inland Waterways Trust Fund, the Olmsted project can be funded from anticipated revenues.

Mr. MYERS. Will your progress on design of the Olmsted project during FY 1990 provide the technical basis necessary to begin land acquisition during FY 1991?

General CHINEN. Yes, the access road design is continuing and will provide sufficient detail to identify real estate requirements which could begin in Fiscal Year 1991, if so directed, and Construction, General funds were made available. However, land acquisition is not on our critical path and will not advance a construction start. Land requirements for the lock and dam construction do not require any specific design studies.

WEST COLUMBUS, OHIO

Mr. MYERS. Please describe briefly the history of the Corps' work on the West Columbus, OH flood control project, the current status and FY 1991 budget request, as well as the projected involvement.

General CHINEN. This project was authorized by the Water Resources Development Act of 1988. The project received funds in FY 1989 to initiate preconstruction engineering and design. These funds were used to prepare detailed mapping required for project design, to begin the re-evaluation of project hydrology, and to initiate preparation of a more detailed project cost estimate. However, the design concept required to provide standard project flood protection for the project has changed significantly due to more accurate mapping, hydrology and hydraulic considerations, and additional geotechnical considerations. In FY 1990, major emphasis will consist of reformulation efforts required to determine the best overall plan for providing flood protection. We are investigating various levels of protection and alignment changes that could maintain or reduce costs while increasing the area of protection. It is hoped that we will be able to initiate detailed design of an initial construction phase with the FY 1991 budget request.

QUESTIONS FOR THE RECORD FROM MR. REGULA

YATESVILLE LAKE, KENTUCKY

Question. Please inform the Committee of the status of the Corps' effort to acquire certain property rights from the L.E. Cooke Corp. for the Yatesville Project.

Answer. The property was acquired by Declaration of Taking filed on December 6, 1989.

Question. What is the Corps' role in the condemnation of the L.E. Cooke Corp. property from this point forward?

Answer. We assisted the U.S. Attorney during settlement negotiations; settlement approval; trial preparation; assistance at the trial and approval of final award amount.

Question. When does the Corps consider a landowner no longer free to develop mineral leases on property within a project area?

Answer. The landowner's rights to develop mineral leases on his property stop on the date of the acquisition of the mineral leases by the United States Government.

Question. Please describe mining activities in the Yatesville Project area during the period January 1, 1987 to December 6, 1989. Are you aware of any landowners in the project who received permits from the state of Kentucky to conduct mining activities during this period?

Answer. On April 15, 1986, the Corps held a meeting with the State and the Office of Surface Mining to assure them that the Government did not object to continuation of permits and that mining could continue until the end of 1990. Meetings were then held with various operators in the area that had expressed an interest in mining to assure them that the Corps would not object to permit applications and to advise them of when the Corps would need the land. Most of the operators did not pursue mining because of the low price of coal and poor quality of coal. There were five active permits during this time period. We know of no new permits issued during this same period of time.

MASSILLON BRIDGES

Question. What is the status of the Corps' involvement with the Cherry Street and Walnut Street bridges in Massillon, Ohio?

OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Projects Including Power

The program request of $34,356,000 provides for the operational requirements of 9 multiple purpose projects. Requirements include: operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts for day-to-day functioning; periodic maintenance, repairs, and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

	OBLIGATIONS			
Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Kentucky				
Barkley Dam--Lake Barkley	$9,096,000	$8,140,000	$4,786,000	FY 89: Dredge lower Cumberland rock ledges; revise lock lighting; purchase quoin and miter blocks; dredge Cumberland River mile 35 to 42. FY 90: Continue dredging lower Cumberland rock ledges; dewater lock; revise lock lighting; reinforce lock valve monoliths; construct mooring cell.
Laurel River Lake	1,411,000	1,000,000	981,000	FY 89: Replace communications path for power plant remote control equipment.
Wolf Creek Dam--Lake Cumberland	5,074,000	4,800,000	4,809,000	
Tennessee				
Center Hill Lake	3,480,000	3,700,000	3,619,000	
Cheatham Lock and Dam	4,900,000	4,900,000	5,507,000	FY 91: Install power plant drift removal trashrack.
Cordell Hull Dam and Reservoir	3,771,000	3,200,000	3,159,000	FY 89: Reinforce lock valve monoliths.

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OHIO RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Projects Including Power (cont'd)

OBLIGATIONS

Project	Actual FY 1989	Estimated FY 1990	Estimated FY 1991	Explanation of Major Changes
Tennessee (cont'd)				
Dale Hollow Lake	$3,233,000	$3,400,000	$3,206,000	
J. Percy Priest Dam & Reservoir	3,215,000	3,100,000	3,031,000	
Old Hickory Lock and Dam	5,298,000	6,600,000	5,258,000	FY 90: Rewind coils on power plant generator.
TOTAL, MULTIPLE PURPOSE PROJECTS	$39,478,000	$38,840,000	$34,356,000	
GRAND TOTAL--OHIO RIVER DIVISION	$187,506,000	$166,300,000	$170,615,000	

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Answer. On February 2, 1990, the Assistant Secretary of the Army for Civil Works approved an agreement between the Department of the Army and Stark County, Ohio for the reconstruction of the Cherry and Walnut Streets Bridges. The county will be credited and reimbursed for 50 percent of the costs of both bridges. In effect, the Corps will fund all of the Walnut Street Bridge project and reimburse Stark County for a portion of the costs of the completed Cherry Street Bridge. The total amount of credit and reimbursement is estimated to be about $1.1 million. The Huntington District will meet with local officials and the Congressional interests on February 12, 1990 for formal signing of the agreement by Stark County, after which the agreement will be returned to the Assistant Secretary of the Army for Civil Works for his execution.

Mr. BEVILL. Mr. Chapman?

Mr. CHAPMAN. I have no questions.

Mr. BEVILL. All of the Members of the subcommittee could not be here today. The Congress is not in session as you know, but they may have questions for the record. I have several other questions that I will put in the record for you to answer. Thank you for your fine presentation.

General CHINEN. Yes sir.

[The information follows:]

QUESTIONS FOR THE RECORD FROM CHAIRMAN BEVILL

CHEATHAM TRASH RAKE

Mr. BEVILL. General, are you making progress on the trash removal demonstration project at the Cheatham hydropower plant?

General CHINEN. Yes sir. A request for proposals was advertised on February 2, 1990 and the bid opening is scheduled for April 13, 1990, with expected award in mid July 1990. The system is estimated to cost $3.3 million. The system effectiveness will be evaluated after contract completion, which is currently scheduled for September 1991.

CUMBERLAND-TENNESSEE RIVERS

Mr. BEVILL. What were the results of the interim report for Center Hill hydropower, Cumberland-Tennessee Rivers study, that was scheduled to be completed in September of 1989?

General CHINEN. The Center Hill interim study indicates that uprating of existing power facilities is economically justified. Finalization of the interim report is dependent upon identifying a project sponsor and developing a financing plan.

Mr. BEVILL. Why has the completion date for the Upper Tennessee River interim of the Cumberland-Tennessee Rivers study slipped one year?

General CHINEN. Sir, the completion of the Upper Tennessee River interim has slipped due to a shift in study priorities to the Cumberland-Tennessee below Barkley Canal interim. Current studies indicate that foundation conditions for a potential new lock at Kentucky Dam will be extremely difficult. A preliminary screening of alternative lock locations sited the new lock landward of the existing lock. This selection assumed that a trough of unsuitable founding material would not underlie the new lock location to an extent greater that previously dealt with during the old lock and dam construction. Further testing is needed to define the potential effect that this trough may have on the exact location and cost of lock foundation. In addition, the karst geology in this area is extremely solutioned requiring specific site data to design and cost this lock with reasonable contingencies.

Mr. BEVILL. What are the respective responsibilities of the Corps of Engineers and TVA with regard to navigation improvements on the Tennessee River?

General CHINEN. In accordance with general navigation laws placing control and supervision over navigable waters under direction of the Secretary of the Army, the Corps of Engineers operates and maintains all of the locks, and maintains navigation channels and safety harbors. In addition, under a memorandum of agreement between the Corps and TVA executed in 1962, the TVA has primary responsibility for construction work of a capital account nature and the Corps has primary responsibility for work of an operational and maintenance nature. With respect to the ongoing Cumberland and Tennessee Rivers study in Kentucky and Tennessee, the Corps of Engineers was authorized to undertake the study by resolution of the Committee on Environment and Public Works, U.S. Senate, adopted September 9, 1982. The ongoing studies on the Tennessee River are being coordinated with TVA. We are currently reviewing the existing memorandum of agreement to determine whether it should be modified or a new agreement prepared to clarify our respective roles with regard to the feasibility study on the Upper Tennessee River.

GREEN AND BARREN RIVERS

Mr. BEVILL. What is the status of the Green and Barren Rivers study?

General CHINEN. The reconnaissance report is scheduled for completion in March 1990 with FY 1990 appropriated funds. If the reconnaissance phase study results in a recommendation to undertake cost-shared feasibility phase study efforts, we expect that considerable time will be required to coordinate local sponsorship. Due to the uncertainty of the reconnaissance study output at this point in time, we will request follow-on feasibility phase funding in the FY 1992 budget cycle, if appropriate. Based on information to date, the reconnaissance study may recommend feasibility studies for navigation modernization and study cost sharing would not be required.

LICKING RIVER BASIN

Mr. BEVILL. You have requested $100,000 to initiate the feasibility phase of the Licking River Basin study. Who will the local sponsor be for the study?

General CHINEN. The County Judge/Executives and Fiscal Courts of Pendleton, Bracken, and Harrison Counties have, by letters and resolutions, indicated support for the study and a willingness to cost share the feasibility phase.

METRO LOUISVILLE

Mr. BEVILL. In FY 1990, $100,000, the same as the budget request, was appropriated for the Metropolitan Louisville study; however, you are only allocating $20,000. Why?

General CHINEN. We delayed initiation of the reconnaissance study until the study partner, the Louisville and Jefferson County Metropolitan Sewer District, was ready with critical mapping which was under independent development. As a result of slippage in initiation and completion of the reconnaissance phase, only $20,000 is required in FY 1990 for initiation of the feasibility phase effort versus the $100,000 we requested last year.

OHIO RIVER MAIN STEM

Mr. BEVILL. Why is the Ohio River Main Stem study identified in the budget justification as a flood damage prevention study when all the work seems to be directed at navigation improvements?

General CHINEN. This flood damage prevention classification is tied to how the initial funding was allocated to the study in the FY 1981 President's budget. The study resolution authorizes flood damage prevention studies along with navigation improvement investigations. Although current study efforts are directed primarily at navigation improvements, earlier efforts addressed flood damage prevention measures and the overall study report will also address such work

MONONGAHELA-YOUGHIOGHENY RIVER BASIN

Mr. BEVILL. What is the status of the Monongahela-Youghiogheny River Basin study which is scheduled to be completed in September 1990?

General CHINEN. The feasibility report, which will be the basis for Locks and Dams 2, 3 and 4 project authorizations, is scheduled for completion in September 1990. We have included initiation of preconstruction engineering and design activities in our FY 1991 budget recommendation for $900,000.

LITTLE KANAWHA RIVER BASIN

Mr. BEVILL. Why has the date for completion of the reconnaissance phase of the Little Kanawha River Basin study slipped from September 1989 to April 1990?

General CHINEN. The reconnaissance phase study initiation was delayed eight months awaiting proper study authorization which was adopted by the Senate Committee on Environment and Public Works on March 21, 1989.

METRO REGION OF NASHVILLE

Mr. BEVILL. Why have no funds been requested to continue the Metropolitan Region of Nashville feasibility study?

General CHINEN. Efforts on the Metropolitan Region of Nashville, Tennessee study have been terminated. The Harpeth River interim has been stopped pending a decision and commitment by the potential sponsors, Williamson County and the City of Franklin, Tennessee to continue. Metro Nashville was identified as the potential sponsor for the last remaining interim, the Metro Cumberland Study. They are financially capable, however, an economically viable solution justifying study continuation was not identified on the mainstem Cumberland and the feasibility effort was terminated.

WABASH RIVER COMPREHENSIVE

Mr. BEVILL. Are you complying with directions contained in House Report 101-96 relating to the Wabash River Comprehensive study?

General CHINEN. Yes, Sir. In FY 1990, $200,000 will be used to initiate and complete a reconnaissance phase study oriented toward identifying urban flood problem areas and to evaluate the adequacy of existing agricultural levees. We have included funds in the FY 1991 budget to initiate a cost shared feasibility study.

MUSKINGUM RIVER WATERWAY

Mr. BEVILL. The FY 1990 appropriations bill included $100,000 for a reconnaissance study of the Muskingum River Waterway. What is the status of that study?

General CHINEN. The Muskingum River Waterway is owned and operated by the state of Ohio which is now completing an analysis of the condition of waterway system facilities. The Corps reconnaissance study will follow the current condition analysis by the state and will be initiated no later than August 1990 with an August 1991 completion date.

LAKE ERIE-OHIO RIVER CANAL

Mr. BEVILL. What is the status of the Lake Erie-Ohio River Canal study?

General CHINEN. Study efforts are continuing. The study will assess the feasibility of constructing a canal connecting Lake Erie and the Ohio River. In FY 1989 $100,000 was made available to develop a definitive study plan, coordinate with interested parties and identify a potential local sponsor. In FY 1990 an additional $250,000 has been made available to conduct a study of social and environmental impacts and estimate tonnage necessary to justify project construction.

Mr. BEVILL. Why were no funds requested in FY 1991 to continue the study?

General CHINEN. Funds in the amount of $900,000 are available from fiscal year 1989 allocations for additional work that may be undertaken in fiscal year 1991 based on the results of studies underway in fiscal year 1990.

McALPINE LOCKS AND DAM

Mr. BEVILL. Why has the cost estimate for PED for the McAlpine Locks and Dam project increased almost $2 million?

General CHINEN. The current preconstruction engineering and design estimate of $7,350,000 is based upon the recently completed feasibility report which refined engineering and project costs. The previous estimate did not take into account detailed formulation and estimating requirements.

SOUTH FRANKFORT

Mr. BEVILL. Has the local sponsor for the South Frankfort, Kentucky, project agreed to bear the additional costs above the cost of the NED plan?

General CHINEN. The City of Frankfort has indicated strong interest in bearing the additional cost. Also, state participation is under consideration during the current session at the Kentucky General Assembly. The city is waiting on potential action by the General Assembly prior to completing a letter of intent and financing plan.

WEST COLUMBUS

Mr. BEVILL. Why are you performing a reevaluation of the West Columbus, Ohio LPP project when the feasibility report was completed in FY 1987?

General CHINEN. The design concept required to provide standard project flood protection for the project has changed significantly due to more accurate mapping, hydrology and hydraulic considerations, and additional geotechnical considerations. Efforts will also be directed toward evaluating changed project conditions, and flood damage surveys to insure appropriate project development. Reformulation and re-evaluation efforts were deemed necessary, and are now underway.

Mr. BEVILL. Is the reevaluation the reason the PED estimate has almost doubled since last year?

General CHINEN. Yes sir. The preconstruction engineering and design estimate was increased due to the reformulation efforts which will place greater emphasis on developing the best overall plan for providing flood protection. We are investigating various levels of protection and alignment changes that could maintain or reduce costs while increasing the area of protection.

SALT RIVER BASIN

Mr. BEVILL. Are you proceeding with the Salt River Basin, Kentucky, study as directed in House Report 101-96?

General CHINEN. Yes sir. FY 1990 funds in the amount of $150,000 will be used to initiate the reconnaissance phase of the study at full federal expense. Funds have been included in the FY 1991 budget to complete the reconnaissance study.

GALLIPOLIS LOCKS AND DAM

Mr. BEVILL. The justification material indicates that the completion date for the Gallipolis Lock and Dam project has slipped 4 years from the date reported last year. Please explain.

General CHINEN. The July 1995, completion date was predicated upon a concurrent locks replacement contract and dam rehabilitation. That approach is not practical. The dam rehabilitation work will follow the lock replacement, which extends completion to June 1999.

EVANSVILLE

Mr. BEVILL. Why has the scheduled completion of the Evansville, Indiana, project slipped one year from the date provided last year?

General CHINEN. The project completion date has slipped from September 1993 to August 1994 due to additional time required to evaluate how the U.S. Highway 41 to Southern Railroad, Part 4, construction should be coordinated with future state highway construction in the area.

YATESVILLE LAKE, KENTUCKY

Mr. BEVILL. What does the unscheduled work on the Yatesville Lake, Kentucky, project consist of?

General CHINEN. The unscheduled work at Yatesville Lake, Kentucky, consists of remaining recreation facilities which are not scheduled pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance.

PAINTSVILLE AND TAYLORSVILLE LAKES

Mr. BEVILL. What is the status of the Paintsville Lake and Taylorsville Lake projects in Kentucky?

General CHINEN. All scheduled work will be completed with available funds for these two projects. The Paintsville Lake, Kentucky, project is currently 89 percent complete and scheduled for completion in September 1990. Taylorsville Lake is 97 percent complete and will also be completed in September 1990.

Mr. BEVILL. What are the prospects for additional recreation development at the projects?

General CHINEN. Currently the prospects are not promising since the Commonwealth of Kentucky has decided not to participate in any additional recreational facility development at either the Paintsville or Taylorsville Lake projects.

TURTLE CREEK

Mr. BEVILL. Have the local cooperation requirements been finalized for the Turtle Creek, Pennsylvania, project?

General CHINEN. At the present time we are actively engaged with Allegheny County, the local sponsor, in finalizing a draft Local Cooperation Agreement and are expecting a letter of intent indicating their concurrence shortly.

HARLAN AND BARBOURVILLE

Mr. BEVILL. Are you complying with the direction provided in the FY 1990 Energy and Water Development Appropriations Act regarding the Harlan and Barbourville elements of the Levisa and Tug Forks of the Big Sandy and Upper Cumberland River project?

General CHINEN. Yes sir, we are complying with the direction provided in the FY 1990 Energy and Water Development Appropriations Act. A contract for construction of the diversion at Harlan, Kentucky, has been awarded and a contract for construction of the Barbourville levee is scheduled for award in the third quarter of FY 1990.

Mr. BEVILL. The budget request does not contain funds to continue the Harlan and Barbourville work. Will ongoing contracts have to be terminated if funds to continue the work are not added by the Congress?

General CHINEN. Yes, the contract will have to be terminated for the convenience of the government.

Mr. BEVILL. What will those costs be?

General CHINEN. It is not possible at the present time to determine what the termination costs would be should the contract be terminated. However, these amounts could include the cost of the work performed, if any, in excess of Fiscal Year 1990 scheduled earnings, the cost of settling with subcontractors, the cost of settling with the contractor, and a reasonable profit for the contractor.

Mr. BEVILL. Are those costs included in the budget request?

General CHINEN. There are no funds included in the budget request for termination. Therefore, funds would have to be reprogrammed to cover these costs in the event Congress agrees with the budget.

WEST FORK, MILL CREEK LAKE

Mr. BEVILL. Are you proceeding with the Winton Woods, Mill Creek Lake, Ohio, project as directed in the FY 1989 Dire Emergency Supplemental Appropriations Act?

General CHINEN. Yes sir, detailed engineering will be initiated this fiscal year.

NELSONVILLE

Mr. BEVILL. What is the status of the Nelsonville, Ohio, project?

General CHINEN. As a result of the Ohio Environmental Protection Agency position not to issue a Section 401 Water Quality Certificate, all preconstruction engineering and design was stopped. This project will remain on hold until the Ohio EPA changes their position. The Ohio governor, Mr. Richard Celeste, was notified on March 22, 1989, that all work on the project had been brought to an orderly conclusion and that if the state's policy concerning stream degradation changed, the Corps would reapply for the Water Quality Certification.

OPERATIONS AND MAINTENANCE

Mr. BEVILL. Does the budget request contain sufficient funds to operate and maintain all your projects in FY 1991?

General CHINEN. Yes sir, the funding level which is proposed is adequate to perform current levels of operations and maintenance requirements at our projects.

TAYLORSVILLE LAKE

Mr. BEVILL. Are you proceeding with the Taylorsville Lake, Kentucky, project as directed in the FY 1990 Energy and Water Development Appropriations Act?

General CHINEN. At Taylorsville Lake, we have initiated preconstruction and design efforts for the Floyd's Fork Bridge replacement as directed by the Act language.

CONTINUING AUTHORITIES PROGRAMS

Mr. BEVILL. Are you proceeding with the projects in the Continuing Authorities Programs as directed by the Congress in House Report 101-96?

General CHINEN. Yes sir, we are proceeding with all the projects in the Continuing Authorities Program as directed. Let me give a brief status of each of those projects contained in House Report 101-96:

Burton Road, Morgan County, Indiana, Section 14 - This project was approved for construction on January 9, 1990.

Clay City, Kentucky, Section 205 - The reconnaissance report for this project is under review at the present time in my office.

Fairground Park, Clarksville, Tennessee, Section 14 - The reconnaissance report for this effort is also currently under review in the division office and is expected to be approved shortly.

Feather Creek, Indiana, Section 205 - The draft feasibility report recommending construction is scheduled to be submitted to my office by the end of this month.

Little Turtle Creek, Sullivan County, Indiana, Section 14 - On August 8, 1989, the locals withdrew their support for this project. All work has been terminated.

South Fork of Wildcat Creek, Tippecanoe County, Indiana, Section 14 - This project was approved for construction on January 9, 1990.

Wabash River, Vigo County, Indiana, Section 14 - A contract for construction of this project was awarded on November 16, 1989 and will be completed this spring.

THURSDAY, FEBRUARY 8, 1990.

MISSOURI RIVER DIVISION

WITNESSES

COL. (P) EUGENE S. WITHERSPOON, DIVISION ENGINEER
WILLIAM P. TODSEN, CHIEF, ENGINEERING DIVISION
ARVID L. THOMSEN, CHIEF, PLANNING DIVISION
ROBERT L. SCOTT, CHIEF, PROGRAMS MANAGEMENT OFFICE

OPENING REMARKS

Mr. BEVILL. Next we have the Missouri River Division.

Colonel Witherspoon, we are pleased to have you with us today. This is your first appearance, I believe.

I understand you are going to be changing those eagles for stars soon. So when you appear next, we will be looking at your stars.

Colonel WITHERSPOON. I hope so, too, sir.

Mr. BEVILL. Since this is your first appearance, you should insert your biographical sketch, which is very impressive, in the record at this point.

Colonel WITHERSPOON. I will be happy to do that.

[The information follows:]

BIOGRAPHY OF COL. (P) EUGENE S. WITHERSPOON, COMMANDER AND DIVISION ENGINEER, MISSOURI RIVER DIVISION, U.S. ARMY CORPS OF ENGINEERS

Colonel (P) Eugenes S. Witherspoon assumed command of the Missouri River Division, U.S. Army Corps of Engineers on 4 January 1990. He has been selected for promotion to Brigadier General.

He directs all Corps of Engineers water resources activities in the Missouri River Basin, an area of 529,000 square miles, including all or parts of ten states. The work is carried out through two districts, headquartered in Omaha, Nebraska, and Kansas City, Missouri.

Colonel (P) Witherspoon also directs the Corps' military construction program for Wyoming, Colorado, North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin and part of Michigan; the Corps of Engineers design center for hazardous and toxic waste cleanup under the multi-billion-dollar EPA Superfund Program and the Department of Defense Environmental Restoration Program; the protective design center-of-expertise for the Army; and is the Corps of Engineers Executive Manager for the Air Force Intercontinental Ballistic Missile Modernization Program.

A native of South Carolina, he is a 1961 graduate of the United States Military Academy at West Point. He also holds a Master of Science degree in Civil Engineering from Arizona State University. His military education includes the Naval War College and the Army Command and General Staff College.

Colonel (P) Witherspoon most recently served as Chief of Staff, U.S. Army Engineers at Fort Leonard Wood, Missouri, and before that as Director of Engineering and Housing at Fort Bragg, North Carolina. In addition, he commanded the New Orleans District with its major navigation and flood control work in south Louisiana and he also served in Saudi Arabia where the Corps of Engineers managed a multi-billion-dollar construction program for the Saudi Ministry of Defense.

In over 28 years of service, Colonel (P) Witherspoon has commanded and served in engineer units in Germany, Vietnam, and Hawaii. He was an exchange instructor with the Royal Australian Engineers. Other staff assignments include the Naval

Civil Engineering Laboratory at Port Hueneme, California, and Deputy District Engineer at Vicksburg, Mississippi.

His military awards include the Legion of Merit Medal with Oak Leaf Cluster, the Bronze Star Medal with Oak Leaf Cluster, the Meritorious Service Medal with two Oak Leaf Clusters and the Army and Navy Commendation Medals.

STATUS REPORT

Mr. BEVILL. You may introduce your staff.

Colonel WITHERSPOON. Mr. Chairman, distinguished Members of the committee, I am privileged to report on the civil works activities of the Missouri River Division. Accompanying me today are three gentlemen, on my right, Mr. Arvid Thomsen, Chief of Planning; on his right, Mr. William Todsen, Chief of Engineering; and on my left, Mr. Robert Scott, Chief of Programs Management. I would like to submit my status report for the record and give you a brief summary.

Mr. BEVILL. We are happy to have you with us. You may proceed as you wish, Colonel. Without objection, your prepared statement will be inserted in the record.

DIVISION AREA

Colonel WITHERSPOON. The Missouri River Division civil works area of responsibility is the 529,000 square miles of the north central United States that are drained by the Missouri River. This area encompasses all of Nebraska and parts of nine other states. The division headquarters is located in Omaha, with district offices in Kansas City and Omaha.

MISSOURI RIVER BASIN DROUGHT OPERATIONS

During 1989, operations in the Missouri River Basin were focused on reducing the impacts of the worst drought in three decades. The drought has clearly illustrated the multiple benefits provided by the six upper Missouri River main stem dams. These multiple-purpose dams are regulated in accordance with our Water Control Plan which prescribes the method of operation under varying hydrologic conditions. The system is functioning as designed; even so, the drought is causing economic pain for virtually all who depend on Missouri River Basin waters for their livelihood.

The third consecutive year of below normal runoff in the upper Missouri River basin has just ended. Runoff for 1987 was 85 percent of normal; in 1988, it dipped to 50 percent of normal; and in 1989, was 72 percent of normal. The 1988 runoff was the fifth lowest in almost 100 years. We estimate it would take six years of normal runoff to restore system storage to desired levels.

In 1988 and 1989, we reduced the length of the navigation season in order to provide navigation flows greater than minimum rates. The 1990 season will again be shortened, but this year's flows will be programmed at minimum navigation rates.

Dredging was required in 1988 and 1989 to maintain navigation on the Missouri River.

Hydropower production was 82 percent of normal during 1989 and, even if we get normal runoff this year, power production would be only 70 percent of normal.

Tourism in the states in which the main stem reservoirs are located had increased dramatically just prior to the drought. Falling lake levels and decreased lake access to Ft. Peck, Sakakawea, and Oahe have resulted in adverse impacts on recreation and a desire for higher lake levels. To help the situation, contracts are in place to extend or relocate boat ramps in 1990, a continuation of efforts begun in 1988 and 1989.

This winter in December we found it necessary to exceed planned releases for several weeks to overcome potential freeze-in problems at water intakes on the lower river.

We are now reviewing and updating the Master Water Control Manual for regulation of the Missouri River main stem system. We will keep the Congressional delegation and the public within the basin apprised of our progress. We are working closely with a committee of basin Governor-appointed representatives during the study.

FY 1991 PROGRAM REQUEST

Looking now to the future, the Missouri River Division program request for Fiscal Year 1991 is about $100 million. The distribution is $2 million for General Investigations; $19 million for Construction, General; and $79 million for Operation and Maintenance, General.

GENERAL INVESTIGATIONS

The program request for General Investigations would be used to continue nine and complete five surveys. In addition, we would start preconstruction engineering and design on three projects, continue on one project, and complete one. I will discuss a few of these studies that are most advanced.

MISSOURI RIVER FISH AND WILDLIFE MITIGATION IOWA, NEBRASKA, KANSAS, AND MISSOURI

The Missouri River Fish and Wildlife Mitigation project would partially mitigate the losses to fish and wildlife caused by the stabilization and navigation project from Sioux City to St. Louis. The mitigation project was authorized by the Water Resources Development Act of 1986, and Congress added initial preconstruction engineering and design funding in Fiscal Year 1990. This effort is scheduled to be completed in Fiscal Year 1991.

PERRY CREEK, IOWA

Preconstruction engineering and design is continuing on the Perry Creek project, located in Sioux City, Iowa. The plan of improvement includes construction of channel improvements and reconstruction of a portion of a conduit to provide 100-year flood protection to Sioux City.

BRUSH CREEK, KANSAS CITY, MISSOURI

The Brush Creek project was authorized in the Water Resources Development Act of 1986 to provide flood damage reduction to an urbanized commercial area along Brush Creek in Kansas City, Missouri. A design document, completed in 1989, indicated that the

cost of the proposed development would exceed limits prescribed by Section 902 of the 1986 Act. As a result, reauthorization is required. Plans and specifications for the initial construction are scheduled to be completed in Fiscal Year 1990.

CONSTRUCTION, GENERAL

The program request to support Construction, General, will be used to continue construction on five flood control projects and one multiple purpose project including power. I will report on some of these projects.

WESTERLY CREEK, COLORADO

Westerly Creek project is located in the metropolitan Denver area. The project consists of the construction of Westerly Creek dam and two collector channels, and existing downstream channel improvements. While the dam is located entirely within Lowry Air Force Base, the principal beneficiary is the urban area downstream from the base.

Relocations and site preparation were completed in 1989. Construction of the dam and collector channels was started in 1989, and the project is scheduled to be completed with Fiscal Year 1991 funds.

BLUE RIVER CHANNEL, KANSAS CITY, MISSOURI

Construction is continuing on Stages 1 and 2 on the Blue River Channel project in Kansas City, Missouri. Contracts for railroad relocations and pile stabilization were completed in 1989. Contaminated sediment removal will be completed this fiscal year. The program request for Fiscal Year 1991 would be used to initiate construction of the paved reach and to continue design of the Stage 3 relocations and channel improvements.

PAPILLION CREEK AND TRIBUTARIES LAKES, NEBRASKA

The Papillion Creek and Tributaries Lakes project in the vicinity of Omaha, Nebraska, includes four dams and improvement of the Big Papillion Creek channel. The four dams are completed. Recreation facilities are completed at Dam Sites 11 and 16 and will be completed at Site 20 this year.

At Site 18, construction of recreation facilities will be continued in Fiscal Years 1990 and 1991.

The Big Papillion Creek Channel project was authorized by the Water Resources Development Act of 1986. Congress added funds in Fiscal Year 1990 to initiate construction on the Big Papillion Creek channel. The first construction contract is scheduled for award this July. The program request for Fiscal Year 1991 would be used to continue construction.

HARRY S. TRUMAN DAM AND RESERVOIR, MISSOURI

The Harry S. Truman project in Missouri is operated to achieve the purposes of flood control, hydropower, recreation, and fish and wildlife.

In Fiscal Year 1990, construction items include work on emergency rock stockpiles, intake gates and hoists, spillway bulkhead, and outlet channel erosion protection.

The program request for Fiscal Year 1991 would be applied principally to complete the outlet channel erosion protection and the spillway bulkhead and start work on draft tube bulkheads and hoists.

OPERATION AND MAINTENANCE, GENERAL

Our Operation and Maintenance program for Fiscal Year 1991 is $78.6 million.

Of the amount requested, 8 percent would be used to maintain the 732-mile-long Missouri River navigation and bank stabilization project; 31 percent would provide for operation and maintenance of our flood control facilities, and 61 percent would be used for operation and maintenance of our eight multiple-purpose power projects.

BENEFITS OF PRIOR INVESTMENTS

I would like now to point out some of the benefits that have accrued to the public over the years from the investments made in the Missouri River Basin.

Since 1938, all Corps projects in the Missouri River Basin have reduced flood damages by nearly $10 billion.

The benefits and costs of our six main stem dams alone provide an even more dramatic example of the value of this investment. The benefits accrued to date from these projects exceed the costs of construction and operation and maintenance by nearly fivefold. With proper maintenance and periodic replacement, they will continue to provide benefits for many years to come.

Mr. Chairman, this completes my report.

[The prepared statement of Colonel Witherspoon follows:]

STATUS REPORT ON CIVIL WORKS ACTIVITIES
in the Missouri River Division
Fiscal Year 1991
Colonel(P) Eugene S. Witherspoon, Division Engineer

Mr. Chairman, distinguished members of the Committee, I am Colonel(P) Eugene S. Witherspoon. I am privileged to report on the civil works activities of the Missouri River Division and to present the Division's FY 1991 program request for your consideration.

DIVISION AREA

The Missouri River Division civil works area of responsibility is the 529,000 square miles of the north-central United States that are drained by the Missouri River. This area encompasses all of Nebraska and parts of nine other states. The Division headquarters is located in Omaha, Nebraska, with District offices in Kansas City, Missouri, and Omaha, Nebraska.

MISSOURI RIVER BASIN

During 1989, the challenge to operations in the Missouri River Basin was focused on reducing the impacts of the worst drought in three decades. The drought has clearly illustrated the multiple benefits provided by the upper Missouri River's six main stem dams, which were authorized as part of the Flood Control Act of 1944. These multiple-purpose dams are regulated in accordance with our Missouri River Master Water Control Plan. This plan prescribes the method of operation under varying hydrologic conditions including a drought as severe as that of the 1930's. The system is accomplishing what it was designed to do, although the drought has resulted in economic pain for virtually all who depend on Missouri River Basin waters for their livelihood.

We have recently concluded the third consecutive year of below normal runoff in the upper Missouri River basin. Runoff for 1987 was 85 percent of normal; 1988 was 50 percent of normal; and 1989 was 72 percent of normal. The 1988 runoff was the fifth lowest since 1898 and tied 1961 as the lowest since 1940. The 1989 runoff was the 15th lowest in 92 years. Reservoir releases provided less than full service to navigation in 1988 and 1989. These actions were taken to enhance the drought-relief capability of the reservoir system should the drought continue. We estimate it would take six years of normal runoff to restore system storage to normal levels.

In 1989, two years of reduced inflows to the reservoirs required further measures to conserve water. Because we reduced the length of the navigation season, we were able to provide flows greater than

minimum rates in 1989. In 1990, the navigation season will also be shortened; but flows will be maintained at minimum rates. In 1989, dredging was again required to maintain navigation on the Missouri River. During critical flow periods in 1988 and 1989, the Missouri River contributed more than 60 percent of the flow of the Mississippi River at St. Louis. Despite the reduced inflows, the large storage in the reservoir system enabled hydropower production at 80 percent of normal during 1989. Even with normal runoff this year, the effects of the three-year drought will reduce power production to approximately 70 percent of normal.

The persistent drought has brought much attention to the regulation of flows on the Missouri River. Tourism in the states in which the main stem reservoirs are located had increased dramatically prior to 1987, due primarily to excellent fishing opportunities offered by the reservoirs. Falling reservoir levels and associated difficulties in maintaining lake access during the past three years of drought have resulted in increased pressure to maintain water levels within the reservoirs.

Lower than normal lake levels during the recreation season caused continued lake access problems at Fort Peck, Sakakawea, and Oahe. The lake levels are from 2 to 7 feet lower than last year at this time, so the impacts will be felt throughout the 1990 recreation season as well. To maintain access at all three reservoir projects, we are extending or relocating selected ramps again this year.

The Missouri River main stem system continues to provide sufficient water for municipal and industrial users. Releases this winter have been at rates less than the record low rates of the previous winter. However, lower river stages and the effects of ice would have impacted on the operation of some water intakes had we not exceeded target releases during the critical freeze-in periods. Without this flow augmentation, many water intakes would have been inoperable; and the severe problems of last year would have been repeated.

We are now reviewing and updating the Master Water Control Manual for the Missouri River main stem. Our plans include continual public involvement. We will keep the Congressional delegation and the public within the basin apprised of our progress. We are working closely with a committee of basin Governor-appointed representatives during the study.

FY 1990 PROGRAM AND FY 1991 PROGRAM REQUEST

The Missouri River Division program request for FY 1991 is $99.4 million. This request is comparable to $97.8 million for these projects in FY 1990 and is distributed as follows:

	FY 1990	FY 1991
General Investigations	$ 1,850,000	$ 2,029,000
Construction, General	19,314,000	18,730,000
Operation & Maintenance, General	76,600,000	78,609,000
TOTAL	$97,764,000	$99,368,000

GENERAL INVESTIGATIONS

The funds requested for General Investigations would be applied to 14 surveys and 5 preconstruction engineering and design projects. Of the surveys, flood damage prevention studies will continue on eight and be completed on four, and project review studies will continue on one and be completed on one. Of the preconstruction engineering and design projects, work will be completed on one navigation project and continue on one flood control project. Three other flood control projects will be new starts.

	Start	Continue	Complete	FY 1991 Amount
SURVEYS				
Flood Damage				
Prevention Studies	0	8	4	$1,067,000
Project Review Studies	0	1	1	223,000
PRECONSTRUCTION ENGINEERING AND DESIGN				
Navigation Projects	0	0	1	429,000
Flood Control Projects	3	1	0	310,000
Total				$2,029,000

BOXELDER CREEK, SPRING CREEK AND DRY CREEK FORT COLLINS, COLORADO

This study is on Boxelder, Spring, and Dry Creeks through the city of Fort Collins, Colorado. Fort Collins is located about 50 miles north of Denver and is immediately adjacent to the foothills of the Rocky Mountains. It had a 1980 population of 65,000, up 50 percent since 1970. The three creeks have a combined drainage area of about 325 square miles. The Fort Collins area has relatively steep topography and is subject to flash flooding. Boxelder Creek has experienced 12 flood events between 1904 and 1969. Spring Creek experienced major floods four times prior to construction of Horsetooth Reservoir in the early 1950's. Even with the reservoir

in place, Spring Creek still has the potential for flooding from all flows larger than a 10-year flood. New development in the lower basin of Dry Creek has increased the potential for increased storm runoff. The increasing magnitude and frequency of flood flows from the rapid urbanization of the Fort Collins area is a major concern of the City of Fort Collins, Larimer County, and the Colorado Water Conservation Board. FY 1991 funds will be used to complete the reconnaissance phase and initiate the feasibility phase, which is scheduled for completion in June 1993.

GOOSE CREEK, BOULDER, COLORADO

Goose Creek flows through a residential and commercial area of Boulder, Colorado. Boulder is a rapidly growing city with a 1980 population of 77,000. Goose Creek has a drainage area of about 6 square miles. Due to the steep topography of the foothills of the Rocky Mountains, the Goose Creek flood plain is subject to frequent flash flooding of short duration. FY 1991 funds would be used to complete the reconnaissance phase and initiate the feasibility phase, which is scheduled for completion in August 1993.

RALSTON AND LEYDEN CREEKS, COLORADO

Ralston and Leyden Creeks, located in the Denver metropolitan area, drain approximately 102 square miles. The downstream portion of Ralston Creek is highly developed with residential, commercial, and industrialized areas. The basin is subject to flash flooding of short duration. The reconnaissance phase is scheduled for completion in April 1990. The best solution appears to be a combination of grass-and-concrete-lined channel improvements combined with improvements to Leyden Dam. The feasibility study will focus on a more detailed evaluation of these improvements. The benefit-cost ratio of this plan is estimated to be 3.1. FY 1991 funds are requested to continue the feasibility phase, which is scheduled for completion in May 1992. The feasibility study will be cost shared with the Urban Drainage and Flood Control District.

THURMAN TO HAMBURG, IOWA

The Thurman to Hamburg, Iowa, study area covers approximately 160 square miles and extends south from Thurman, Iowa, to the mouth of the Nishnabotna River and eastward from the Missouri River to the Missouri River bluffs. During the past seven years, this area has experienced flood damages of nearly $50 million. The reconnaissance phase is scheduled to be completed in September 1990. FY 1991 funds are requested to continue the feasibility phase, which is scheduled for completion in October 1992.

TURKEY CREEK BASIN, KANSAS AND MISSOURI

The Turkey Creek Basin covers a 23-square-mile area located within the Kansas City metropolitan area. The basin is nearly 100 percent urbanized, with a significant amount of development existing in the flood plain. Large floods cause overbank flows to inundate highly developed areas in Kansas City, Missouri, as well as in Kansas City, Kansas. The most recent flood occurred in September 1986. The reconnaissance phase was completed in February 1989. Both cities support the study and are cost sharing in the feasibility study. Possible solutions include channel and bridge modifications and related measures on the lowermost 2 miles of Turkey Creek. The program request for FY 1991 would be used to continue the feasibility study, which is scheduled for completion in April 1992.

BLUE RIVER BASIN, KANSAS CITY, MISSOURI

The Blue River Basin drains a 272-square-mile area, much of which is in the metropolitan Kansas City area. A channel project is under construction in the lower basin. However, flooding remains a problem in the upper basin. The reconnaissance phase was completed in July 1988, and recommended further study of an area from 75th Street to Prospect Avenue. The feasibility study is being cost shared with Kansas City, Missouri. Due to changed conditions encountered during the feasibility study, a revised cost sharing agreement has been negotiated. The most likely project consists of a levee from the existing General Services Administration levee near Prospect Avenue downstream to past U.S. Highway 71. The program request for FY 1991 would be used to finish the feasibility study, which is scheduled for completion in June 1991, and to initiate preconstruction engineering and design.

ST. JOSEPH, MISSOURI, AND VICINITY

The St. Joseph, Missouri, and Vicinity study addresses the substantial flood hazard from several small Missouri River tributary streams which flow through or near the city. The most recent flooding occurred on 7 June 1984 and resulted in one death and over $16 million in damages. The reconnaissance phase is scheduled for completion in June 1990. Potentially feasible projects include detention structures on Blacksnake, Whitehead, and Brown's Branch Creeks and a levee on the left bank of Contrary Creek. The program request for FY 1991 would be used to continue the Federal share of the feasibility phase that is scheduled for completion in April 1994.

ANTELOPE CREEK, LINCOLN, NEBRASKA

Antelope Creek flows through the heart of the city of Lincoln, Nebraska. Flood problems are due to a constriction in the channel and rapid runoff from the fully urbanized watershed. Average annual damages are estimated to be $1.2 million. The reconnaissance phase is scheduled to be completed in September 1990. The study focus will include detention storage, conduit improvements, construction of a second conduit, and channel alterations. Funds requested for FY 1991 would be used to continue the feasibility phase that is scheduled for completion in October 1992. .

WOOD RIVER, GRAND ISLAND, NEBRASKA

The study area is located in the southern half of Grand Island, Nebraska. Flooding and erosion in the study area from the Wood River are widespread, long in duration, and involve a large contributing drainage area. The reconnaissance phase was completed in November 1988. A grass-lined diversion channel to divert flood flows from the Wood River into the Platte River upstream of Grand Island appears feasible. The Central Platte Natural Resources District, the City of Grand Island, Hall County, and Merrick County are the cost sharingsponsors for the feasibility phase, which is scheduled for completion in May 1991. The program request for FY 1991 would be used to finish the feasibility study and to initiate preconstruction engineering and design.

BIG SIOUX RIVER AT SIOUX FALLS, SOUTH DAKOTA

The city of Sioux Falls is located in a large bend of the Big Sioux River in southeastern South Dakota. The existing project, constructed in 1965, provides only about a 43-year level of protection due to changed conditions. The reconnaissance phase was completed in September 1989. Increasing the capacity of the existing project by enlarging the diversion channel and chute and raising the Skunk Creek levees appear feasible. The City of Sioux Falls is the cost sharing sponsor for the feasibility phase. The program request for FY 1991 would be used to finish the feasibility phase, which is scheduled for completion in August 1991.

JAMES RIVER BASIN, SOUTH DAKOTA

The James River Basin study area is located in eastern South Dakota. The James River Water Development District and the State of South Dakota have invested about $3.1 million on recent studies and a small flood control project. The Water Resources Development Act of 1986 authorized channel restoration and improvements to alleviate flooding on the James River, and requested a report on additional flood control features that may be required. The reconnaissance phase is scheduled for completion in March 1990. Three feasibility studies are scheduled to be initiated in FY 1990.

One will pursue the flood problem at Mitchell. The City of Mitchell will share the cost. The second will investigate the Aberdeen flood problem. The City of Aberdeen and Brown County will share the cost. The third feasibility study will address environmental restoration and the cost will be shared with the James River Water Development District. The program request for FY 1991 would continue these feasibility studies, which are scheduled for completion in June 1992.

WATERTOWN AND VICINITY, SOUTH DAKOTA

The Watertown and Vicinity, South Dakota, study area consists of that part of South Dakota in the Big Sioux River basin above the Brookings-Moody county line. The Big Sioux River and the natural lakes in the valley are interconnected and experience prolonged high water during conditions of above normal precipitation. Lakeside developments and five towns have experienced damages. The reconnaissance phase was completed in April 1988. It recommended feasibility studies of two reservoir sites on the Big Sioux River. The cost sharing contract for the feasibility study was signed 12 April 1988 with the East Dakota Water Development District. The program request for FY 1991 would be used to complete the feasibility study in July 1991 and initiate preconstruction engineering and design, which is scheduled for completion in March 1992.

SOLDIER CREEK DIVERSION UNIT, TOPEKA, KANSAS

A continuing project review study is on the Soldier Creek Diversion Unit, Topeka, Kansas, which was constructed as part of an overall plan to control flooding in the basin. The Diversion Unit realigned and straightened Soldier Creek around the city of Topeka. Since completion of the Diversion Unit in 1961, severe channel degradation has occurred and is continuing to occur upstream of the unit. The degradation has caused numerous slides and has damaged county bridges and the Union Pacific Railroad facilities. The reconnaissance phase of the study is scheduled for completion in March 1990. The likely result is one more grade control structures with bank protection as required. The feasibility study will be cost shared with Shawnee County, Kansas. The funds requested for FY 1991 would be used to continue the feasibility phase that is scheduled for completion in March 1992.

DRY FORK AND EAST FORK LAKES FISHING RIVER, MISSOURI

A project review study of the Dry Fork and East Fork Lakes on the Fishing River at Excelsior Springs, Missouri, will be initiated in FY 1990. Dry Fork and East Fork join in Excelsior Springs. Upstream of Excelsior Springs, East Fork drains about 20 square miles, and Dry Fork about 3 square miles. Either basin is capable of producing runoff that would be severely damaging to urban development.

A two-lake system providing local protection for Excelsior Springs was authorized by the Flood Control Act of 1965; however, subsequent studies show that the lakes are no longer economically feasible. Little has changed to alter the economic feasibility of the lakes, but there is a need to evaluate other flood control measures. Funds requested for FY 1991 would be used to complete the reconnaissance phase, which is scheduled for completion in September 1991.

PERRY CREEK, IOWA

Preconstruction engineering and design is continuing on the Perry Creek project, located in Sioux City, Iowa. The project was authorized by the Water Resources Development Act of 1986. The project, currently estimated at $50.8 million, includes construction of channel improvements and reconstruction of a portion of a conduit to provide 100-year flood protection to Sioux City.

Hydraulic model studies and economic studies indicate that a portion of the proposed conduit reconstruction should be redesigned as an open channel. The change to an open channel will result in a less expensive, more effective project that is acceptable to local interests. The General Design Memorandum is scheduled for completion in May 1990. The design for the conduit reconstruction is very complex and requires the preparation of a Feature Design Memorandum. The program request for FY 1991 would be used to initiate this Feature Design Memorandum, which is scheduled for completion in FY 1993.

MISSOURI RIVER FISH AND WILDLIFE MITIGATION

The Missouri River Fish and Wildlife Mitigation project was authorized by the Water Resources Development Act of 1986. The project would partially mitigate the losses to fish and wildlife resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation Project from Sioux City, Iowa, to the mouth at St. Louis, Missouri. The mitigation would develop 16,900 acres of public lands, and it would restore and preserve 1,900 acres of non-public aquatic lands, 1,300 areas of public aquatic lands, and 28,000 acres of non-public timber-brush habitat. An estimated 29,900 acres of mostly undeveloped non-public land would be acquired to implement the project. Preconstruction engineering and design was initiated in FY 1990 and is scheduled to be completed with funds requested for FY 1991.

BRUSH CREEK, KANSAS CITY, MISSOURI

The Brush Creek project was authorized in the Water Resources Development Act of 1986 to provide flood damage reduction to an urbanized commercial area along Brush Creek in Kansas City, Missouri. The authorized plan of improvement consists of deepening the channel an average of 5 feet for approximately 7,500 feet. A General Design Memorandum scope report completed in January 1989 on the authorized

Federal project indicated that the cost of the project exceeds the limit established by Section 902 of the Water Resources Development Act of 1986. As a result, we have initiated project reauthorization action. Kansas City, Missouri, the local sponsor, has proposed extending the project both upstream and downstream of the Federal project, at a cost of about $20 million. Aesthetic enhancements have also been proposed by the city to both the Federal project and the extensions. The city will pay all of the costs for the design and construction of both the extensions and the enhancement. Corps design and construction of the extensions were authorized by the Water Resources Development Act of 1988. FY 1990 funds are being used to complete the plans and specifications for the first construction contract.

CONSTRUCTION, GENERAL

The program request to support Construction, General will be used to continue construction on five flood control projects and one multiple purpose project including power as shown in the following table:

	Projects	FY 1991 Amount
Flood Control	5	$15,235,000
Multiple Purpose Including Power	1	3,495,000
Total		$18,730,000

WESTERLY CREEK, COLORADO

One of the five flood control projects under construction is the Westerly Creek project in the metropolitan Denver area. The project consists of the construction of Westerly Creek Dam and two collector channels, and existing downstream channel improvements. While the project is located entirely within Lowry Air Force Base, Colorado, the principal beneficiary is the urban area downstream from the base. The costs of this project are being shared with the Urban Drainage and Flood Control District, the City of Denver, and the City of Aurora. Credit was approved in March 1988 for local sponsor work performed on downstream channel improvements prior to project authorization.

Initial construction funds were appropriated for FY 1988. The first contract, for relocations and site preparation, was completed in 1989. The second and final contract, for construction of the dam and collector channels, was awarded in June 1989. The program amount for FY 1991 would be used to complete the project.

MISSOURI RIVER LEVEE SYSTEM
IOWA, NEBRASKA, KANSAS, AND MISSOURI

The Missouri River Levee System has a total Federal and non-Federal investment of nearly $98 million through FY 1989. This investment has prevented an estimated $368 million in flood damages. The program request for FY 1991 would be used to continue preconstruction engineering and design on Unit L385 and to review deferred and inactive units.

BLUE RIVER CHANNEL, KANSAS CITY, MISSOURI

The Blue River Channel project, located in Kansas City, Missouri, consists of 12.5 miles of channel alterations with required bridge relocations. The local sponsor is the City of Kansas City, Missouri. Construction is continuing on Stages 1 and 2. Existing contracts for railroad relocations and the pile stabilization contract were completed in 1989. Contaminated sediment removal will be completed this fiscal year. The program request for FY 1991 would be used to initiate construction of the paved reach and to continue design of the Stage 3 relocations and channel improvements. The entire project is 21 percent complete.

PAPILLION CREEK AND TRIBUTARIES LAKES, NEBRASKA

The Papillion Creek and Tributaries Lakes project, in the vicinity of Omaha, Nebraska, consists of four dams -- Sites 11, 16, 18, and 20 -- and improvement of the Big Papillion Creek channel. Dams 11 and 16 are completed and fully operational.

At Site 20, the dam and relocations are complete. Cost shared recreation facilities will be completed this year.

At Site 18, the dam and relocations are also complete. With the beneficial completion of the effluent storage facility in 1989, the low-level outlet was closed in December 1989, and impoundment of the recreation pool initiated. The program request for FY 1991 would be used to continue cost shared recreational development.

The Big Papillion Creek channel project was authorized by the Water Resources Development Act of 1986. The cost sharing sponsor is the Papio - Missouri River Natural Resources District. Congress added funds in FY 1990 to initiate construction of the Big Papillion Creek channel. The Phase I construction contract is scheduled for award in July 1990. The program request for FY 1991 would be used to complete the Phase I contract and initiate Phase II construction.

MISSOURI NATIONAL RECREATIONAL RIVER
NEBRASKA AND SOUTH DAKOTA

The Missouri National Recreational River, a segment of the National Wild and Scenic Rivers System, was authorized by Section 707 of the National Parks and Recreation Act of 1978. The request for FY 1991 would be used to complete reimbursement to local interests for cost shared development of recreation facilities at Yankton, South Dakota, to complete a biological assessment, and to complete a demonstration program for the enhancement of habitat for the endangered interior least tern and threatened piping plover.

HARRY S. TRUMAN DAM AND RESERVOIR, MISSOURI

The Harry S. Truman Lake project, located in Missouri, is operated to achieve the purposes of flood control, hydropower, recreation, and fish and wildlife.

In FY 1990, construction items include emergency rock stockpiles, completion of installation of intake gates and hoists, start of procurement and installation of the spillway bulkhead, and start of work on outlet channel erosion protection. The program request for FY 1991 would be applied principally to complete construction of the outlet channel erosion protection, complete procurement and installation of the spillway bulkhead, and start procurement of draft tube bulkheads and hoists.

OPERATION AND MAINTENANCE, GENERAL

Our Operation and Maintenance program for FY 1991 is shown in the following table:

	Projects	FY 1990 Amount
Navigation	2	$ 6,385,000
Flood Control	26	24,172,000
Multiple Purpose Power	8	48,052,000
Total		$ 78,609,000

Of the amount requested, 8 percent would be used to maintain the 732-mile-long Missouri River navigation and bank stabilization project, 31 percent would provide for operation and maintenance of our flood control facilities, and 61 percent would be used for operation and maintenance of our eight multiple-purpose power projects.

BENEFITS

I would like now to point out some of the benefits that have accrued to the public over the years from the investments made in the Missouri River Basin.

Since 1938, Corps projects in the Missouri River Basin have reduced flood damages by nearly $10 billion.

Our six main stem dams on the Missouri River provide an even more dramatic example of the value of this investment. The benefits accrued to date from these projects exceed the costs of construction and operation and maintenance by nearly five-fold. With proper maintenance and periodic replacement, they will continue to provide benefits for many years to come.

Mr. Chairman, this completes my report.

MISSOURI RIVER DIVISION JUSTIFICATION

Mr. BEVILL. Thank you, Colonel, for a fine presentation. We will insert the justification material for the Missouri River Division in the record at this point, without objection.

[The information follows:]

JUSTIFICATION OF ESTIMATES FOR CIVIL FUNCTIONS ACTIVITIES
DEPARTMENT OF THE ARMY
FISCAL YEAR 1991

SUMMARY MISSOURI RIVER DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
General Investigations			
Surveys	1,416,000	1,290,000	-126,000
Preconstruction Engineering and Design	791,000	739,000	-52,000
Construction, General			
Construction	16,307,000	18,730,000	+2,423,000
Operation and Maintenance, General			
Project Operation and Maintenance	76,600,000	78,609,000	+2,009,000
TOTAL	95,114,000	99,368,000	+4,254,000

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

1. SURVEYS - NEW: None

2. SURVEYS - CONTINUING

a. Navigation Studies: None

b. Flood Damage Prevention Studies: The amount of $1,067,000 is requested to continue twelve studies in Fiscal Year 1991.

COLORADO

Boxelder Creek, Spring Creek, Dry Creek; Fort Collins, Colorado	450,000	0	144,000	70,000	236,000

Boxelder, Spring, and Dry Creeks are located in Larimer County in north-central Colorado, and they flow through the city of Fort Collins, Colorado. Fort Collins is located about 50 miles north of Denver and is immediately adjacent to the foothills of the Rocky Mountains. Fort Collins is a rapidly growing city with a 1980 population of 65,000. Between 1970 and 1980, the city experienced a growth of about 50 percent.

Boxelder, Spring, and Dry Creeks have drainage areas of 251 square miles, 9 square miles, and 65 square miles, respectively. Spring Creek flows through major areas of Fort Collins, while Dry Creek and Boxelder Creek skirt the Fort Collins area. All three streams enter the Cache La Poudre River within Fort Collins. The Fort Collins area has relatively steep topography and is subject to flash flooding. Boxelder Creek has experienced 12 flood events between 1904 and 1969. Spring Creek experienced major floods four times prior to the construction of Horsetooth Reservoir in the early 1950's. High water occurred in 1961, 1975, and 1977; however, flood damages did not occur. The period of record does not reflect potential for flooding from relatively infrequent (greater than 10-year) events. Serious flooding has not historically occurred along Dry Creek; however, new development in the lower basin has increased the magnitude of storm runoff. In the past, much of the excess flow was intercepted by irrigation canals; however, the increased runoff results in flows exceeding the capacities of the canals. The increasing magnitude and frequency of flood flows from the rapid urbanization of the Fort Collins area is a major

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Boxelder Creek, Spring Creek, Dry Creek; Fort Collins, Colorado (cont'd)

concern of the city of Fort Collins, Larimer County, and the Colorado Water Conservation Board (CWCB). Expected annual damages along Boxelder, Spring, and Dry Creeks are estimated to be $91,000, $854,000 and $1,041,000, respectively.

The flood problems at Fort Collins were considered as part of a previous Corps reconnaissance study (Platte River Basin, Colorado, Nebraska, and Wyoming). That study, which screened the flood-related problems at over 200 communities within the three-state basin, determined that there are economically feasible solutions to the flood problems at Fort Collins and that separate reconnaissance phase studies should be conducted. Studies conducted in 1980 and 1981 by Larimer County, Colorado, and the CWCB outlined a plan which consists of grass- and concrete-lined channel improvements, bridge improvements, levees, and floodwater detention ponds to provide 100-year flood protection. Based on 1989 price levels, the plan would have a first cost of about $10.6 million, annual costs of $941,000, annual benefits of $1,893,000, and a benefit-cost ratio of 2.0.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. Funds requested for FY 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase. The preliminary estimated cost of the feasibility phase is $564,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$732,000
Reconnaissance Phase (Federal)	168,000
Feasibility Phase (Federal)	282,000
Feasibility Phase (non-Federal)	282,000

The reconnaissance phase is scheduled for completion in May 1991. The feasibility study is scheduled for completion in June 1993.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Goose Creek, Boulder, Colorado	316,000	0	60,000	70,000	186,000

Goose Creek has a drainage area of about 6 square miles, mostly within the city of Boulder, CO. Boulder is located about 20 miles northwest of Denver and is immediately adjacent to the foothills of the Rocky Mountains. Boulder is a rapidly growing city, with a 1980 population of 77,000. Flood damages along Goose Creek are heavy because the creek passes through densely populated residential and commercial areas. Significant flooding along Goose Creek occurred in August 1951 and July 1954. The basin does not have a long history of major flood events; however, due to the steep topography, the Goose Creek flood plain is subject to flash flooding of short duration and high overbank flow velocities which could occur frequently. A study conducted in 1984 by the Urban Drainage and Flood Control District (UDFCD) estimated the expected annual flood damages on Goose Creek at slightly over $1 million. Extensive damage could occur to numerous residential structures in the upper and middle reaches of Goose Creek and to numerous commercial businesses in the middle and lower reaches.

The flood problems on Goose Creek in Boulder were considered as part of a previous Corps study (Platte River Basin, Colorado, Nebraska, and Wyoming). That study, which screened the flood related problems at over 200 communities within the three-state basin, determined that there are economically feasible solutions to the flood problems along Goose Creek and that separate reconnaissance phase studies should be conducted. A 1987 study by the UDFCD outlined a plan which consisted of grass-lined channels to provide protection against 100-year flood flows. The downstream reach has already been constructed, and the two upstream reaches may not meet the minimum discharge criteria for Corps studies. The remaining reach, however, consists of a potential channelization project with an estimated first cost of $5.5 million, average annual costs of $485,000, average annual benefits of $648,000, and a benefit-cost ratio of 1.3.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase. Funds requested for FY 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase. The preliminary estimated cost of the feasibility phase is $392,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Goose Creek, Boulder, Colorado (cont'd)

Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$512,000
Reconnaissance Phase (Federal)	120,000
Feasibility Phase (Federal)	196,000
Feasibility Phase (Non-Federal)	196,000

The reconnaissance phase is scheduled for completion in July 1991. The feasibility study is scheduled for completion in August 1993.

Ralston and Leyden Creeks, Colorado	362,000	130,000	85,000	100,000	47,000

Ralston and Leyden Creeks are located in the Metropolitan Denver, Colorado area. Ralston Creek drains approximately 91 square miles in Gilpin and Jefferson Counties and major portions of the city of Arvada, Colorado. Leyden Creek is a left bank tributary of Ralston Creek which drains approximately 11.5 square miles. The portion of Ralston Creek downstream from Leyden Creek is fully developed. This development consists of residential housing in the upper reaches and industrial structures and warehouses in the lower reaches. A large trailer court is located at the mouth of Ralston Creek. Development has encroached into the flood plain, causing severe floodflow constrictions. Due to the steep topography, the basin is subject to flash flooding of short duration. The Urban Drainage and Flood Control District (UDFCD) has estimated that the expected annual flood damages are about $6.5 million.

The reconnaissance phase of this study was conducted as part of the Platte River Basin, Colorado, Nebraska, and Wyoming study. Conclusions of the reconnaissance study were that the best solution to the flood problem on Ralston and Leyden Creeks would be a combination of grass- and concrete-lined channel improvements, combined with improvements to Leyden Dam, and that the feasibility study should focus on a more detailed evaluation of these improvements. The estimated cost of the tentative plan of improvement is $30 million. The plan would reduce expected annual flood damages on Ralston and Leyden Creeks by $6.1 million. The benefit-cost ratio of the plan is 3.1.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Ralston and Leyden Creeks, Colorado (cont'd)

The study cost sharing sponsor will be the UDFCD. By subagreement, the city of Arvada would provide funding assistance to the UDFCD. The UDFCD understands the two-phase study process and current study cost-sharing requirements, and it has expressed the desire to negotiate and sign a cost-sharing agreement for the feasibility study.

Fiscal Year 1990 funds will be used to initiate feasibility phase studies. The estimated cost of the feasibility phase is $464,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$594,000
Reconnaissance Phase (Federal)	130,000
Feasibility Phase (Federal)	232,000
Feasibility Phase (Non-Federal)	232,000

The reconnaissance phase is scheduled for completion in April 1990. The feasibility study is scheduled for completion in May 1992.

IOWA

Thurman to Hamburg, Iowa	265,000	104,000	9,000	97,000	55,000

The city of Hamburg, Iowa, is subject to frequent flooding from Main Ditch 6. The city has experienced flooding three times in the last six years, including the spring of 1987, when damages in Hamburg were estimated to be $2.6 million. The problems in the study area include shallow flooding on the extremely flat Missouri River flood plain, inadequate erosion control, lack of sediment retention measures in the steep upper watersheds that drain onto the flat flood plain, and sediment-filled drainage collector ditches. There are also problems associated with Unit L575 of the Missouri River Levee System, such as inadequate drainage through the levee, meandering channels and sediment buildup behind Missouri River tieback levees, and possible inadequate capacity of Levee Unit L575. All of these problems

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Thurman to Hamburg, Iowa (cont'd)

contribute to the frequent inundation of crops, causing extensive economic loss for the local communities. The spring flood of 1967 alone caused $4 million in agricultural damages. In the spring of 1984, high water remained for several months in the study area, inundating several thousand acres and completely destroying that year's crop. The ongoing reconnaissance study is evaluating the flooding and sedimentation problems in the area, and is identifying and evaluating alternate solutions. Potential solutions include the installation of pumps and construction of dams, levees, or sediment-retention structures.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. Fiscal Year 1991 funds will be used to continue work on the feasibility phase of the study. The estimated cost of the feasibility phase is $322,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Potential sponsors include the city of Hamburg, the Iowa Department of Natural Resources, or the newly formed West Fremont County Flood Control Association. All of the potential sponsors support the study and fully understand the requirements for study cost sharing. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$426,000
Reconnaissance Phase (Federal)	104,000
Feasibility Phase (Federal)	161,000
Feasibility Phase (non-Federal)	161,000

The reconnaissance phase is scheduled for completion in September 1990. The feasibility study is scheduled for completion in October 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
KANSAS					
Turkey Creek Basin, Kansas and Missouri	679,000	460,000	80,000	100,000	39,000

The Turkey Creek basin is a 23 square-mile area within Kansas City, Kansas and suburbs in Johnson and Wyandotte Counties. Turkey Creek flows into the Kansas River just three miles upstream from the confluence of the Kansas and Missouri Rivers. The basin is nearly 100 percent urbanized, and a significant amount of development exists in the flood plain. Large floods cause overbank flows to inundate highly developed areas along Southwest Boulevard and in the Central Industrial District in Kansas City, Missouri, as well as in Kansas City, Kansas. Four damaging floods have occurred since 1977, and there is a high level of concern by local interests.

The cities of Kansas City, Kansas, and Kansas City, Missouri, both participated in negotiation of a feasibility cost sharing agreement during 1988. The agreement was signed in February 1989, and the feasibility study was initiated in May 1989 upon receipt of non-Federal funds.

Fiscal Year 1990 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1991 will also be used to continue the feasibility phase. The estimated cost of the feasibility phase is $718,000, which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,038,000
Reconnaissance Phase (Federal)	320,000
Feasibility Phase (Federal)	359,000
Feasibility Phase (Non-Federal)	359,000

The reconnaissance report was completed in December 1987. The reconnaissance phase was completed in February 1989. The feasibility study is scheduled for completion in April 1992.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
MISSOURI					
Blue River Basin, Kansas City, Missouri	568,000	345,000	160,000	63,000	0

The Blue River drains a 272 square-mile area, much of which is a highly urbanized part of the Kansas City Metropolitan Region. About 56 percent of the basin lies in Johnson County, Kansas, and the remainder is in Cass and Jackson Counties, Missouri. Flooding has been a major problem in the basin for many years. The Flood Control Act of 1970 authorized a plan of improvement which consisted of a 12-mile-long channel modification project on the lowermost part of the Blue River and four multipurpose lakes in the upper basin. The channel modification project is currently under construction. Due to development in project areas and lack of a recreation cost sharing sponsor, the lake projects were never constructed and were deauthorized by the Water Resources Development Act of 1986. A serious flood problem remains, particularly along the Blue River from 75th Street upstream to its Indian Creek tributary. Kansas City, Missouri, is the study sponsor. A feasibility cost sharing agreement was signed on 14 July 1988, and a revised feasibility cost sharing agreement has been negotiated.

Fiscal Year 1990 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase. The estimated cost of the feasibility phase is $746,000, which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$941,000
Reconnaissance Phase (Federal)	195,000
Feasibility Phase (Federal)	373,000
Feasibility Phase (Non-Federal)	373,000

The reconnaissance report was completed in May 1987. The reconnaissance phase of the study was completed in July 1988. The feasibility study is scheduled for completion in June 1991.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
St. Joseph, Missouri, and Vicinity	858,000	225,000	25,000	140,000	468,000

The city of St. Joseph, Missouri (1980 population - 76,691) lies on the left bank of the Missouri River in northwest Missouri. Portions of the city have been protected from Missouri River flooding by Federally built Missouri River levee units. However, a substantial flood hazard remains, particularly from several small tributary streams which flow through or near the city. These streams include Blacksnake Creek, Whitehead Creek, One Hundred and Two River, Contrary Creek, Brown's Branch, Roy's Branch, Charles Street Drainage, and Mitchell Avenue Drainage. The most recent flooding occurred on 7 June 1984 and resulted in one death and severe monetary losses. The city is interested in both structural plans and nonstructural measures for flood damage reduction.

The city affirmed its intention to share in the feasibility study cost in December 1987 and reaffirmed its intention in January 1989. A feasibility cost sharing agreement has been negotiated but not yet signed. A city tax and bond issue to cost share the study was disapproved by voters in November 1988. The city council passed a resolution of intent on 30 October 1989 to place a revenue issue for the feasibility study on a 3 April 1990 ballot.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $1,266,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,491,000
Reconnaissance Phase (Federal)	225,000
Feasibility Phase (Federal)	633,000
Feasibility Phase (Non-Federal)	633,000

The reconnaissance report was completed in December 1987. The reconnaissance phase is scheduled for completion in June 1990. The feasibility study is scheduled for completion in April 1994.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
NEBRASKA					
Antelope Creek, Lincoln, Nebraska	360,000	150,000	99,000	21,000	90,000

Antelope Creek is a right bank tributary of Salt Creek, which flows through the heart of the city of Lincoln in east central Nebraska. The area of study is a fully developed urbanized area downstream from an existing Corps of Engineers flood control project known as Holmes Park Dam, which is located approximately five miles upstream from the confluence with Salt Creek. Flood problems are due to a constriction in the drainageway and rapid runoff from the fully urbanized area downstream of Holmes Park Dam. Peak runoff from frequent high-intensity storms exceeds channel capacity, which is estimated at approximately 2,300 cubic feet per second (cfs). Peak flow resulting from a 100-year frequency storm is 7,800 cfs. Based on a Flood Insurance Study dated 18 March 1986, the 100-year flood will inundate 693 structures at an average depth of 2.4 feet, with damages estimated at $22.8 million. Average annual damages are estimated to be $1.2 million. Potential solutions include detention storage basins, conduit improvements, construction of a second conduit along an abandoned railroad right-way, and channel alterations. The city of Lincoln and the Lower Platte South Natural Resources District, the project sponsors, were informed on 1 June 1987 of the cost sharing requirements for the feasibility study and construction. They understand the requirements and support further studies.

Fiscal Year 1990 funds will be used to initiate the feasibility study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $420,000, which is to be shared on a 50-50 percent by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$570,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	210,000
Feasibility Phase (Non-Federal)	210,000

The reconnaissance phase is scheduled for completion in September 1990. The feasibility study is scheduled for completion in October 1992.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Wood River, Grand Island, Nebraska	296,000	206,000	62,000	28,000	0

The study area is located in Hall County, Nebraska, in the southern half of the city of Grand Island. The Wood River originates in Nebraska about 80 miles west of Grand Island. Flooding and erosion in the study area are widespread, long in duration, and involve large contributing drainage areas and volumes of water. The 500-year flood-plain consists of 1,268 residential structures and 59 nonresidential structures with an approximate value of $200 million and expected annual damages of nearly $3.0 million. The study will investigate the feasibility of and the Federal interest in constructing floodways to divert flood flows from the Wood River to the Platte River. Most of the flood control benefits would accrue to the Grand Island area. The reconnaissance phase of this study was conducted as part of the Platte River Basin, Colorado, Nebraska, and Wyoming study.

Fiscal Year 1990 funds are being used to continue the feasibility phase. Fiscal Year 1991 funds will be used to complete the feasibility phase. The estimated cost of the feasibility phase is $372,000, which is to be shared on a 50-50 percent basis with the non-Federal sponsor. Approximately 16 percent of the non-Federal share will be provided as in-kind services. The Central Platte Natural Resources District, the city of Grand Island, Hall County, and Merrick County are sponsoring the feasibility study. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$482,000
Reconnaissance Phase (Federal)	110,000
Feasibility Phase (Federal)	186,000
Feasibility Phase (non-Federal)	186,000

The reconnaissance phase was completed in November 1988. The feasibility study is scheduled for completion in May 1991.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
SOUTH DAKOTA					
Big Sioux River, Sioux Falls, South Dakota	361,000	123,000	144,000	94,000	0

Sioux Falls, South Dakota, is located on a large bend of the Big Sioux River in southeastern South Dakota. In 1965 the Corps of Engineers completed a channelization and levee system to provide flood protection from the Big Sioux River and Skunk Creek, which is a tributary to the Big Sioux River. Even with the flood control project in place, expected annual damages are estimated to be $1.97 million from the Big Sioux River and $0.74 million from Skunk Creek. The existing project provides only about a 43-year level of flood protection. The reconnaissance report recommends upgrading the existing flood control project. Upgrading the Skunk Creek portion of the project was found to be infeasible during the reconnaissance study, due to the high cost of modifying the I-29 bridge over Skunk Creek. However, the bridge was modified after the reconnaissance study, and it appears that upgrading the Skunk Creek levee is now feasible. The local sponsor, the city of Sioux Falls, SD, has requested that we reevaluate the Skunk Creek levee during the feasibility study. The upgrading would consist of raising the levee from the diversion dam to the upstream tie-off, raising the diversion channel levee, modifying the chute and stilling basin, raising the diversion dam, and providing for bridge improvements.

Fiscal Year 1990 funds are being used to continue the feasibility study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility study. The estimated cost of the feasibility study is $476,000, which is to be shared on a 50-50 percent basis with by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$599,000
Reconnaissance Phase (Federal)	123,000
Feasibility Phase (Federal)	238,000
Feasibility Phase (non-Federal)	238,000

The reconnaissance phase was completed in September 1989. The feasibility study is scheduled for completion in August 1991.

29 JAN 1990

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
James River Basin, South Dakota	602,000	221,000	150,000	186,000	45,000

The main stem James River has restricted channel conveyance along most of its 450-mile length in South Dakota. Inflowing tributaries are numerous, and the larger ones have greater channel conveyance than the main stem. As a result, frequent and prolonged flooding along the mainstem is common. Flood flows may arise from the main stem out of North Dakota or originate from major subwatersheds. Serious flooding occurred in 1982, 1984, and 1986, with minor flooding in both 1987 and 1989. The 1984 flood caused damages in the lower basin that exceeded $7 million. Rural damages prevail along the mainstem, but Aberdeen, Prairiewood, Mitchell, and several small towns are affected by flood flows from tributaries. Flood damages on an annual basis in the James River basin are estimated to be over $2.8 million.

Section 401(b) of the WRDA of 1986 authorized channel restoration, tributary storage, and various other measures to alleviate flooding and regulate flows in the James River basin. In August 1989, a reconnaissance report was completed that defined the extent and location of problem areas and determined the effectiveness of specific flood damage reduction measures. Significant urban damage potential was identified in the Aberdeen area and at Mitchell. Damage reduction measures found to be effective include various levee alignments in the Aberdeen area and a small dam providing protection for Mitchell. Potential local sponsors are the James River Water Development District (JRWDD), Brown County, SD; and the city of Mitchell, SD. These potential sponsors have indicated support for additional cost-shared feasibility studies.

Late in the study, the JRWDD proposed its James River Channel Restoration Plan for potential Corps involvement as a new environmental initiative. The plan was included in the reconnaissance study as a basis for deciding the appropriateness of Corps participation. The channel restoration plan applies mainly to the 450 river miles of the main stem of the James River in South Dakota. The plan includes removal of numerous flow obstructions and debris; restoring, preserving and enhancing the environmental values; constructing tributary reservoirs to provide minimum in-stream flows; providing recreation; making minor improvements to existing dams; and dredging specific sites for water supply and environmental purposes. The plan has widespread support from within the basin and the state. The JRWDD has indicated a strong desire to cost share further study of an environment-based approach.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

James River Basin, South Dakota (cont'd)

Fiscal Year 1990 funds are being used to initiate the feasibility study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $762,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$983,000
Reconnaissance Phase (Federal)	221,000
Feasibility Phase (Federal)	381,000
Feasibility Phase (non-Federal)	381,000

The reconnaissance phase is scheduled for completion in March 1990. Three feasibility studies will be initiated in FY 1990: (1) a flood control study at Mitchell, SD, (2) a flood control study at Aberdeen, SD, and (3) the environmental initiative on the main stem. These studies will be completed by June 1992.

Watertown and Vicinity, South Dakota	522,000	253,000	171,000	98,000	0

The study area consists of that part of South Dakota in the contributing Big Sioux River Basin above the North Hamlin County line. Peak flood discharges result in damages to urban development along the Big Sioux River in the Watertown area and adjacent to Lakes Kampeska, Pelican, and Poinsett. Watertown and Lake Kampeska have an estimated 1980 population of 15,700 within the study area. The total annual flood damages are estimated to be $1,163,800. This value includes damages to 1,377 residential structures and 124 commercial structures. The reconnaissance report recommended further studies of reservoir sites on the Big Sioux River below Mahoney Creek to provide flood protection for Watertown and the Lake Kampeska area. The East Dakota Water Development District is the cost-sharing sponsor for the feasibility phase.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Watertown and Vicinity, South Dakota (cont'd)					

Fiscal Year 1990 funds are being used to continue the feasibility study. Funds requested for Fiscal Year 1991 will be used to complete the feasibility phase. The estimated cost of the feasibility phase is $824,000, which is being shared on a 50-50 percent by Federal and non-Federal interests. Approximately 23 percent of the non-Federal share will be provided as in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$934,000
Reconnaissance Phase (Federal)	110,000
Feasibility Phase (Federal)	412,000
Feasibility Phase (non-Federal)	412,000

The reconnaissance phase was completed in April 1988. The feasibility study is scheduled for completion in July 1991.

Subtotal -- Flood Damage Prevention Studies	5,639,000	2,217,000	1,189,000	1,067,000	1,166,000

c. Shoreline Protection Studies: None

d. Special Studies: None

e. Comprehensive Studies: None

f. Project Review Studies: The amount of $223,000 is requested to continue two project review studies in Fiscal Year 1991.

29 JAN 1990

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
KANSAS					
Soldier Creek Diversion Unit, Topeka, Kansas	365,000	155,000	50,000	120,000	40,000

Soldier Creek drains an area of 304 square miles in Shawnee and Jackson Counties, Kansas, including a substantial portion of north Topeka. The Soldier Creek Diversion Unit was constructed as part of an overall plan to control flooding in the basin. That plan included the Grove Lake project on Soldier Creek, which was subsequently desauthorized by the Water Resources Development Act of 1986 (PL 99-662). The Diversion Unit provided a realigned and straightened Soldier Creek around the city of Topeka, providing substantial flood damage reduction. Since completion of the Diversion Unit in 1961, severe channel degradation has occurred and is continuing to occur upstream of the unit. The degradation has caused numerous slides, and has damaged county road bridges and Union Pacific Railroad facilities.

Shawnee County, the North Topeka Drainage District, and the Union Pacific Railroad have all worked to arrest the degradation, but have not been successful. All these entities have indicated interest in sponsoring or supporting feasibility studies for project modification. By letter of 19 May 1988, Shawnee County expressed its intent to serve as sponsor.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The preliminary estimated cost of the feasibility phase is $420,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$575,000
Reconnaissance Phase (Federal)	155,000
Feasibility Phase (Federal)	210,000
Feasibility Phase (Non-Federal)	210,000

The reconnaissance report was completed in May 1987 and revised and included in the Kansas and Osage Rivers, Kansas, Feasibility Report, which was completed in December 1988. The reconnaissance phase of the study is scheduled for completion in March 1990. The feasibility study is scheduled for completion in March 1992.

19 JAN 1990

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
MISSOURI					
Dry Fork and East Fork Lakes, Fishing River, Missouri	205,000	0	102,000	103,000	0

The city of Excelsior Springs is located in Clay and Ray Counties, Missouri, at the confluence of the East Fork of the Fishing River and its tributary, Dry Fork. Upstream of Excelsior Springs, East Fork drains about twenty square miles, and the Dry Fork drainage is slightly more than three square miles. Either basin is capable of producing runoff that would be severely damaging to urban development. The 1947 flood was the most severe on record, causing losses estimated at $1,100,000. Flooding in July 1965 caused an estimated $344,000 in damages. A two-lake system providing local protection for Excelsior Springs was authorized by the Flood Control Act of 1965 (PL 89-298) and restudied in 1973. At that time, neither lake was economically feasible, and the city could not give assurances of local sponsorship. The lake system was classified inactive in 1973 and reclassified deferred in 1981. Little has changed to alter the feasibility of the upstream lakes, but there is a current need to evaluate non-lake flood control measures, such as a channel modification, with the potential of providing 100-year or greater level of protection to the city's business district.

Severe flooding in September 1977 revived interest in the project, as expressed in correspondence from the mayor of Excelsior Springs in 1979 and a letter reaffirming the city's interest received in February 1981. Other less severe flooding has occurred since 1977. The city confirmed its interest at a meeting in October 1987. The city's representative indicated an understanding of the cost sharing required for the feasibility study and construction. A June 1988 contact from the city indicated continued interest in the project.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Dry Fork and East Fork Lakes, Fishing River, Missouri (cont'd)					
Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of study. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase. The reconnaissance report is scheduled for completion in March 1991. The reconnaissance phase of the study is scheduled for completion in September 1991.					
Subtotal -- Project Review Studies	570,000	155,000	152,000	223,000	40,000
SUBTOTAL SURVEYS - CONTINUING	6,209,000	2,372,000	1,341,000	1,290,000	1,206,000
TOTAL -- SURVEYS	6,209,000	2,372,000	1,341,000	1,290,000	1,206,000

3. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - NEW

a. Navigation: None

b. Flood Control: The amount of $210,000 is requested to initiate PED for three local protection projects in Fiscal Year 1991.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Missouri River Division

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - NEW (cont'd)					
MISSOURI					
Blue River Basin, Kansas City, Missouri	1,100,000	0	0	10,000	1,090,000

The Blue River drains a 272 square-mile area, much of which is a highly urbanized part of the Kansas City Metropolitan Region. About 56 percent of the basin lies in Johnson County, Kansas, and the remainder is in Cass and Jackson Counties, Missouri. Flooding has been a major problem in the basin for many years. The Flood Control Act of 1970 authorized a plan of improvement which consisted of a 12-mile-long channel modification project on the lowermost part of the Blue River and four multiple-purpose lakes in the upper basin. The channel modification project is currently under construction. Due to development in project areas and lack of a recreation cost sharing sponsor, the lake projects were never constructed and were deauthorized by the Water Resources Development Act of 1986. A serious flood problem remains, particularly along the Blue River from 75th Street upstream to its Indian Creek tributary. Kansas City, Missouri, is the study sponsor. A feasibility cost sharing agreement was signed on 14 July 1988, and a revised feasibility cost sharing agreement has been negotiated. The most likely project consists of a levee from the existing GSA levee near Prospect Avenue downstream to just past U. S. Highway No. 71, along with related facilities.

The project is not authorized for construction. Authorization cannot be recommended before completion of the feasibility report, which is scheduled for June 1991 with subsequent Washington level review.

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design, which is scheduled for completion in FY 1994.

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - NEW (Cont'd)					
NEBRASKA					
Wood River, Grand Island, Nebraska	447,000	0	0	150,000	297,000

The project area is located in Hall County, Nebraska, in the southern half of the city of Grand Island. The Wood River basin originates about 80 miles west of Grand Island and drains approximately 770 square miles. Flooding and erosion in the study area are widespread, long in duration, and involve large volumes of water. The most significant flood of record occurred in 1967, causing an estimated $13.1 million (1989 dollars) in damage. Total value of flood plain development is nearly $200 million, and expected annual damages are nearly $3.0 million. The feasibility report is scheduled for completion in Fiscal Year 1991. The Central Platte Natural Resources District, the city of Grand Island, Hall County, and Merrick County are the cost-sharing sponsors for the feasibility study and the proposed project. The proposed project, estimated to cost $4.8 million, would include construction of floodways to divert flood flows from the Wood River to the Platte River. The average annual benefits amount to $2,561,000, all for flood control. Most of the flood control benefits would accrue to the Grand Island area. The benefit-cost ratio is 5.4 to 1.

The project, not yet authorized for construction, is subject to the cost-sharing requirements of the Water Resources Development Act of 1986.

Fiscal Year 1991 funds will be used to initiate the design memorandum. Preconstruction Engineering and Design is scheduled for completion in February 1993.

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Missouri River Division

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - NEW (cont'd)					
SOUTH DAKOTA					
Watertown and Vicinity, South Dakota	252,000	0	0	50,000	202,000

The study area consists of that part of South Dakota in the contributing Big Sioux River Basin above the North Hamlin County line. The Big Sioux River and the natural lakes in the Big Sioux Basin are generally interconnected with surficial aquifers. Since 1984, these aquifers and surface waters have been experiencing prolonged high water conditions. Lake Kampeska, Watertown, and Pelican Lakes are experiencing these conditions, but also have aggravated damages due to peak flood discharges. This area has problems with water quality, sedimentation, and recreation during drought periods. The two developed areas most affected are Watertown and adjacent Lake Kampeska, which have an increased permanent population along the lake. The reconnaissance report recommended further studies of reservoir sites on the Big Sioux River below Mahoney Creek to provide flood protection for Watertown and Lake Kampeska area.

The East Dakota Water Development District is the cost sharing sponsor for the feasibility study and the proposed project.

The project, not yet authorized for construction, is subject to the cost-sharing requirements of the Water Resources Development Act of 1986.

The feasibility study is being developed in such detail as to incorporate a major portion of the General Design Memorandum. Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design which is scheduled for completion in March 1992.

Subtotal -- Flood Control	1,799,000	0	0	210,000	1,589,000

999

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
SUBTOTAL -- PRECONSTRUCTION ENGINEERING AND DESIGN -- NEW	1,799,000	0	0	210,000	1,589,000

4. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - CONTINUING

a. Navigation: The amount of $429,000 is requested to continue PED for one river channel project in Fiscal Year 1991.

IOWA

Missouri River Fish and Wildlife Mitigation, Iowa, Nebraska, Kansas, and Missouri	725,000	0	296,000	429,000	0

The project would mitigate the losses to fish and wildlife resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation Project. Construction of this project was completed in 1980, and it is now being operated and maintained. The mitigation would develop 16,900 acres of public lands; and it would restore and preserve 1,900 acres of non-public aquatic lands, 1,300 areas of public aquatic lands, and 28,000 acres of non-public timber-brush habitat. An estimated 29,900 acres of mostly undeveloped non-public land would be acquired to implement the project. All mitigation would occur in the area of impact generally adjacent to the Missouri River in the states of Iowa, Nebraska, Kansas, and Missouri.

This project was authorized by the Water Resources Development Act of 1986 (P.L. 99-662). The current estimated Federal construction cost is $54,700,000 at 1 October 1989 price levels.

667

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - CONTINUING (cont'd)					
IOWA					
Missouri River Fish and Wildlife Mitigation, Iowa, Nebraska (cont'd)					

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to complete preconstruction engineering and design in September 1991.

Subtotal -- Navigation	725,000	0	296,000	429,000	0

b. Flood Control: The amount of $225,000 is requested to continue one local protection project in Fiscal Year 1991.

IOWA					
Perry Creek, Iowa	2,100,000	1,193,000	215,000	100,000	592,000

Perry Creek drains an area of about 72 square miles in northwest Iowa and empties into the Missouri River in Sioux City, Iowa. The flood plain is fully developed for residential and commercial use and contains over 2,400 structures, including a major portion of the central business district. Expected annual damages are $5.4 million at October 1989 prices and condition of development. A feasibility report was completed in FY 1981. The recommended project, currently estimated at $50.8 million, includes construction of a channel and reconstruction of part of an existing conduit to provide protection at Sioux City from floods up to and including the 100-year flood. A portion of the proposed conduit reconstruction has been reformulated due to hydraulic problems disclosed in model studies. This resulted in local sponsor interest in an alternate open channel concept to replace a portion of the conduit. The indicated changes in channel shape and alignment will result in a better design. The changes are favorably regarded by the local sponsor because of concerns for esthetics, attractiveness for economic redevelopment, and recreation potential. Preconstruction Engineering and Design costs have increased 41 percent over the estimate last reported, primarily because of increased work programmed for the Feature Design Memorandum on the conduit which involves

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Missouri River Division

Project	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Perry Creek, Iowa (cont'd)					

complex design. The design schedule has been extended two years to accommodate the local sponsors's ability to finance the non-Federal share. The average annual benefits amount to $5.8 million (including recreation advance benefits, replacement benefits and reduced Operation and Maintenance benefits). The benefit-cost ratio is 1.15 to 1.

The project is authorized for construction by the Water Resources Development Act of 1986, with the following cost-share requirements: the non-Federal sponsor must furnish necessary lands, easements, rights-of-way, and relocations, plus a cash contribution of 5 percent of the flood control costs, and 50 percent of the recreation and fish and wildlife mitigation costs.

Fiscal Year 1990 funds are being used to complete the General Design Memorandum. Fiscal Year 1991 funds will be used to initiate the Feature Design Memorandum. Preconstruction Engineering and Design is scheduled for completion in September 1993.

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Subtotal -- Flood Control	2,100,000	1,193,000	215,000	100,000	592,000

APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Missouri River Division

Project	Total Estimated Federal Cont	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
c. Shoreline Protection: None					
d. Multiple Purpose Power: None					
SUBTOTAL -- PRECONSTRUCTION ENGINEERING AND DESIGN -- CONTINUING	2,825,000	1,193,000	511,000	529,000	592,000
TOTAL -- PRECONSTRUCTION ENGINEERING AND DESIGN	4,624,000	1,193,000	511,000	739,000	2,181,000
GRAND TOTAL -- SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN	10,833,000	3,565,000	1,852,000	2,029,000	3,387,000

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29 JAN 1990

27-138 O—90——22

APPROPRIATION TITLE: Construction, General - Flood Control (Local Protection)

PROJECT: Westerly Creek, Colorado (Continuing)

LOCATION: The Westerly Creek basin lies almost entirely in the urbanized Metropolitan Denver, Colorado, area. Westerly Creek drains an area of about 18 square miles and includes portions of Aurora and Denver, Colorado, and Lowry Air Force Base (AFB).

DESCRIPTION: Construction of Westerly Creek Dam and two collector channels leading into Westerly Creek impoundment, all located on Lowry Air Force Base.

AUTHORIZATION: Water Resources Development Act (WRDA) of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 13.6 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.8 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.2 to 1 at 8 7/8 percent (FY 1988)

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum approved in March 1988 at 1988 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$ 8,500,000
Estimated Non-Federal Cost		3,700,000
Cash Contributions	$ 610,000	
Other Cost	3,090,000	
Total Estimated Project Costs		$12,200,000

		ACCUM.
Allocations to 30 September 1989	$ 4,406,000	PCT. OF
Conference Allowance for FY 1990	4,000,000	EST. FED.
Allocation for FY 1990	2,852,000 1/	COST
Allocations through FY 1990	7,258,000	85

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	61	Jul 1991

1/ Reflects reduction of $386,000 assigned as Savings and Slippage, $41,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $721,000 reprogrammed from the project.

Division: Missouri River District: Omaha Westerly Creek, Colorado

SUMMARIZED FINANCIAL DATA (continued)

		ACCUM. PCT. OF EST. FED COST
Allocation Requested for FY 1991	1,242,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after 1991	0	

PHYSICAL DATA

Dams:

Number: 1
Height: 44.5 ft maximum
Length: 9,200 ft
Type: Rolled earthfill embankment (Dry dam)

Spillways:

Earth-cut grass-lined

Outlet Works:

Gated 48-inch diameter RCP.

Relocations:

Utilities, storage buildings, golf course features and recreational vehicle storage $2,102,000

Lands and Damages:

Acres: 271
Type: Air Force Base

Reservoir Capacity: (Total Project)

Flood control 8,100 acre-feet

Collector Channels:

Number: 2
Length: 4,700 ft and 3,550 ft

JUSTIFICATION: A severe flood problem exists in the Westerly Creek basin, which lies almost entirely in the urbanized Metropolitan Denver area. Flooding on Westerly Creek has occurred 14 times since 1942. Depths of flooding up to 4.5 feet have been experienced downstream from Kelly Road Dam, which was originally designed to store runoff from floods somewhat greater than the 100-year event. Extensive development in the basin, particularly upstream from

Division: Missouri River District: Omaha Westerly Creek, Colorado

JUSTIFICATION (continued):

Lowry Air Force Base, has caused substantial increases in runoff; and the contributing drainage area of Kelly Road Dam has increased from 3.7 to 10.5 square miles. These two factors have combined to significantly reduce the effectiveness and threaten the integrity of the dam. Emergency measures were constructed to reduce the potential catastrophic failure of Kelly Road Dam; however, the level of protection downstream from the dam is still relatively low. Local interests have recently enlarged the downstream channel to carry the 10-year flood event. The Westerly Creek project will provide 500-year flood protection just downstream of Kelly Road Dam. The estimated average annual benefits, based on 1 October 1987 prices, are as follows:

Annual Benefits	Amount
Flood Control - Urban Existing	$1,061,000
Location	111,000
Cost Savings	
Kelly Road Dam	355,000
Collector Channels	784,000
Total	$2,311,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete construction of dam & channels	$1,176,000
Engineering and Design	36,000
Supervision and Administration	30,000
Total	$1,242,000

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NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation Maintenance, and Replacement Costs
Through credits for downstream channel improvements previously constructed, the non-Federal sponsor will:		
Pay all costs to modify or relocate buildings, utilities, roads, and other facilities, where necessary for the construction of the project.	$2,466,000	
Pay all costs for construction of collector channels.	624,000	
Pay in cash, 5 percent of the total project cost.	610,000	
Bear all cost for operation, maintenance, and replacement of the flood control facilities.		$ 55,400
Total Non-Federal Costs	$3,700,000	

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the Urban Drainage and Flood Control District (UDFCD) of the Metropolitan Denver area. In a letter dated 13 February 1987, UDFCD requested credit for $6,353,000 in downstream channel improvements which were constructed between 1 January 1978 and 6 August 1984. The Assistant Secretary of the Army (Civil Works) on 14 March 1988 approved credit for the construction accomplished by the local sponsor. Appropriate adjustments have been made to the Federal and non-Federal costs. The amount of credit included in the non-Federal estimate is $3,090,000. This credit is equivalent to the cost of the relocations and collector channels. The local cooperation agreement was executed on 2 August 1988. An operation and maintenance agreement (Memorandum of Understanding) between the UDFCD and Lowry AFB was executed on 11 August 1988. A Memorandum For Agreement (MFA) between the Corps of Engineers and Lowry AFB was executed on March 30, 1989. The MFA delineates temporary arrangements required to minimize disruption to base operations and recreation facilities (particularly Lowry's golf course) during the project construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $ 8,500,000 is a decrease of $3,300,000 from the latest estimate ($11,800,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$+ 192,000
Post Contract Award and Other Estimating Adjustments	
-Modifications to Phase I contract	+ 59,000
-Savings from actual bid on Phase II contract	-3,551,000
Total	$-3,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 15 January 1980.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1986, and the GDM was completed in December 1987. Funds to initiate construction were appropriated in Fiscal Year 1988.

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APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Missouri River Levee System, Iowa, Nebraska, Kansas and Missouri (Active Units) (Continuing)

LOCATION: Along both sides of the Missouri River, Sioux City, Iowa, to the Mouth.

DESCRIPTION: A series of levee units and appurtenant works along both sides of the Missouri River from Sioux City, Iowa to the Mouth, for protection of agricultural lands and small communities against floods.

AUTHORIZATION: 1941 and 1944 Flood Control Acts

REMAINING BENEFIT - REMAINING COST RATIO: 2.9 to 1 at 2 1/2 percent based on 1 October 1988 values. (Unit L385 only)

TOTAL BENEFIT-COST RATIO: Information is not available due to completion of individual units at various times since 1948.

INITIAL BENEFIT-COST RATIO: 1.5 to 1 at 2 1/2 percent (FY 1948)

BASIS OF BENEFIT-COST RATIO: Remaining benefit - remaining cost ratio is for Unit L385 only. Unit L385 benefit and cost data is at 1 October 1988 values and is based on a revised General Design Memorandum dated 22 May 1989.

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SUMMARIZED FINANCIAL DATA			
Estimated Federal Cost			$114,416,000
Scheduled Construction		$91,254,000	
Unscheduled Construction		23,162,000	
Estimated Non-Federal Cost			17,778,000 1/
Scheduled Construction		8,724,000	
Cash Contributions	$0		
Other Costs	8,724,000		
Unscheduled Construction		9,054,000	
Cash Contributions	5,211,000		
Other Costs	3,843,000		

PHYSICAL DATA	
LEVEES	
Average Height	14 feet
Length	422 miles
Area Protected	328,000 acres

1/ In addition, numerous flood control works have been constructed over many years by individuals and groups as land along the Missouri River has developed for agricultural use. The total cost of these improvements is unknown.

Division: Missouri River District: Kansas City

Missouri River Levee System, Iowa, Nebraska, Kansas and Missouri

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Cont'd)

		ACCUM PCT OF EST FED COST
Total Estimated Scheduled Cost	$99,978,000	
Total Estimated Unscheduled Cost	32,216,000	
Total Estimated Project Cost	132,194,000	
Allocations to 30 September 1989	89,103,000	
Conference Allowance for FY 1990	500,000	
Allocation for FY 1990	532,000 1/	
Allocations thru FY 1990	89,635,000	78
Allocation Requested for FY 1991	905,000	79
Scheduled Balance to Complete after FY 1991	714,000	
Unscheduled Balance to Complete after FY 1991	23,162,000	

1/ Reflects reduction of $48,000 assigned as savings and slippage, $5,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $85,000 reprogrammed to the project.

STATUS (1 January 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
L624-627, R616, L611-614, R613, L601, L594, R580, L575, R573, R562, L550-561, R548, L536, R520, R512-513, R500, Kimsey-Holly Creek, L497, L488, R482, L476, R460-471, L455, L443-448, R440, L408, L400, R351, & L246	100	
Riverside-Quindaro Bend Levee District (L385)	0	Unscheduled
Entire Active Program	100	2/

2/ Construction of Unit L385 is unscheduled.

JUSTIFICATION: The active units of the authorized Missouri River Levee System, in conjunction with existing and authorized upstream reservoirs, will provide protection against destructive floods of a magnitude equal to those of past record for 427,000 acres of agricultural lands, highways, railroads, and utility lines, as well as for many small communities in the Missouri River flood plain from Omaha, Nebraska, to the mouth. From 1943 thru 1987, 74 floods have been experienced along the lower reaches of the Missouri River. The estimated average annual flood control benefits for all completed and active units between Sioux City and the mouth are not available due to completion of individual units at various times since 1948.

Division: Missouri River District: Kansas City

Missouri River Levee System,
Iowa, Nebraska, Kansas and Missouri

29 JAN 1990

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Preconstruction Engineering and Design for Unit L385	$790,000
Review of Deferred and Inactive Units	43,000
Supervision and Administration	72,000
Total	$905,000

NON-FEDERAL COSTS: Total non-Federal cost is $17,778,000. Under cost-sharing principles in effect at the time earlier units were under construction, non-Federal sponsors provided lands, easements, and rights-of-way valued at $8,324,000 and contributed $400,000 for interior drainage work. The sponsors are also providing operation, maintenance, and replacements at a current annual cost of $574,200 (1 October 1989).

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor for Unit L385 must comply with the requirements listed below.

Requirements of Local Cooperation	Costs During Construction	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, and rights-of-way	$2,910,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	933,000	
Pay 14 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent of Unit L385, and bear all costs of operation, maintenance, and replacement of flood control facilities	5,211,000	$41,300
Total Non-Federal Costs During Construction	$9,054,000	

The non-Federal sponsor understands that payments are required during project construction.

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STATUS OF LOCAL COOPERATION: The Quindaro Bend Levee District and Riverside Drainage District were to be joint sponsors of Unit L385. In the spring of 1986, the Riverside Drainage District determined that they were unable to fund their portion of the project alone. As a result, both drainage districts filed the necessary papers to dissolve and reform as one district, the Riverside-Quindaro Bend Levee District. This was finalized 10 October 1988. In May 1989 the sponsor was furnished a draft Local Cooperation Agreement (LCA) stipulating requirements of sponsorship. The sponsor was prepared to furnish the Corps its approved draft LCA, Financial Plan, and Statement of Financial Capability, and real estate acquisition schedule. The levee district retained an appraiser, surveyor, bonding company, and prepared its plan of reclamation. The Corps informed the levee district in August 1989 that reformulation of the project is required since the economic justification for the proposed plan included a substantial location benefit for a one-time increase in market value of undeveloped land. The Corps advised the levee district to cease its activities until the reformulation is complete.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $114,416,000 for the active program is a decrease of $3,225,000 from the latest estimate ($117,641,000) presented to Congress (FY 1989). This change includes the following:

Item	Incremental Change
Price Escalation on Construction Features	$+1,083,000
Design Changes	-7,713,000
Other Estimating Adjustments	+1,236,000
Sundry	+2,169,000
TOTAL	$-3,225,000

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1946 and to initiate construction in FY 1948.

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APPROPRIATION TITLE: Construction, General - Local Protection Projects (Flood Control)

PROJECT: Blue River Channel, Kansas City, Missouri (Continuing)

LOCATION: The project is located along the Blue River and tributaries in Kansas City, Jackson County, Missouri, and extends from near its mouth (located at Missouri river mile 358.0) to 63rd Street, channel mile 12.5.

DESCRIPTION: The project plan consists of a channel modification along 12.5 miles of the Blue River channel providing flood protection for a once in 30-year flood and reducing flooding for less frequent events.

AUTHORIZATION: 1970 Flood Control Act

REMAINING BENEFIT - REMAINING COST RATIO: 2.7 to 1 at 6 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 6 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.6 to 1 at 6 5/8 percent (FY 1979).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest approved General Design Memorandum dated February 1978, revised May 1979, and approved in June 1979 at October 1979 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM PCT OF EST FED COST
Estimated Federal Cost	$175,000,000	
Estimated Non-Federal Other Costs	22,800,000	
Total Estimated Project Cost	$197,800,000	
Allocations to 30 September 1989	$34,951,000	
Conference Allowance for FY 1990	5,300,000	
Allocation for FY 1990	4,470,000 1/	
Allocations through FY 1990	39,421,000	23

1/ Reflects reduction of $511,000 assigned as savings and slippage, $55,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $264,000 reprogrammed from the project.

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	21	Sep 1998

PHYSICAL DATA

Bridge Alterations at Federal Cost:
- Highway Bridges - Modify - 1 - $850,000
- Railroad Bridges - Modify - 15 - $15,046,000

Bridge Alterations at Non-Federal Cost:
- Highway Bridges - Modify - 4

Channel Improvement: Length
- Main Stem, Blue River Channel - 12.5 miles

Division: Missouri River District: Kansas City

Blue River Channel, Kansas City, Missouri

SUMMARIZED FINANCIAL DATA (Cont'd)

		ACCUM PCT OF ESTIM FED COST
Allocation Requested for FY 1991	$10,100,000	28
Scheduled Balance to Complete after FY 1991	125,479,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: The Blue River basin lies completely in the Kansas City Metropolitan Region, with a 1980 population of about 1.3 million persons. The basin drains an area of 272 square miles and is subject to cloudbursts, prolonged rainstorms, floods, and extended drought periods. The maximum flood of record in the basin occurred in September 1961 causing damages of nearly $8 million. A recurrence of this flood at 1989 conditions would cause damages estimated at $136.3 million. With the authorized channel, a recurrence of the 1961 flood would cause only minor damage in the lower basin area. A flood occurred in August 1982 causing about $3.3 million in flood damages. All of this damage would have been prevented if the project had been in place. During October 1986, another small flood occurred along the Brush Creek tributary and the lower part of the basin. If the channel project had been in place, it would have prevented flood damages estimated at $209,000 along the lower end of the flood plain. The channel project provides for about a 30-year level of protection to 3,400 acres in the lower basin, including the Blue River Valley Industrial District. The estimated annual average benefits, all flood control, based on 1 October 1979 prices, are $13.4 million, of which $9.8 million are existing benefits and $3.6 million are future benefits.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue construction of Stage 2 channel	$7,489,000
Engineering and design	2,018,000
Supervision and administration	593,000
Total	$10,100,000

NON-FEDERAL COSTS: Local interests are required to furnish without cost to the United States all lands, easements, and rights-of-way required for construction and subsequent maintenance of the project; hold and save the United States free from damages due to construction; perform without cost to the United States necessary highway, highway bridge, and utility alterations required in connection with this project; maintain and operate the project after completion in accordance with regulations prescribed by the Secretary of the Army; and adequately inform all affected persons, at least annually, that the project will not provide complete flood protection. The investment is broken down as follows:

Lands and Damages	$15,396,000
Relocations	7,404,000
Total	$22,800,000

It is estimated that the average annual expenditure for operation, maintenance and replacements will total $61,000 (1 October 1989).

STATUS OF LOCAL COOPERATION: The Section 221 Agreement was signed by the Kansas City District Engineer on 8 September 1983. The city of Kansas City, Missouri has provided all of the rights-of-way for Stages 1 and 2. Stage 3 right-of-way requirements will be provided to the city when they are more accurately defined during Stage 3 design studies. The current non-Federal cost estimate of $22,800,000 is a decrease of $200,000 from the latest estimate of $23,000,000 presented to Congress (FY 1990). The change is due to adjustments in the estimated inflation allowance through the construction period.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $175,000,000 is an increase of $2,000,000 from the latest estimate ($173,000,000) presented to Congress (FY 1990). The following item has changed:

Item	Incremental Change
Price Escalation on Construction Features	$2,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Final statement on Blue River Basin plan made in connection with preauthorization studies was filed with the Council on Environmental Quality (CEQ) on 13 November 1970. A more complete draft statement on the Blue River Basin plan, including specific information on the impacts of the Blue River Channel, was filed with the CEQ on 11 April 1974. The final statement was forwarded to HQUSACE on 24 October 1974, and was filed with the CEQ on 8 September 1975.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1973 and funds to initiate construction were appropriated in FY 1979.

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APPROPRIATION TITLE: Construction, General (Flood Control)

PROJECT: Missouri National Recreational River, Nebraska and South Dakota (Continuing)

LOCATION: The Missouri River between Gavins Point Dam and Ponca State Park, Nebraska. This includes Cedar and Dixon Counties in Nebraska, and Yankton, Clay, and Union Counties in South Dakota.

DESCRIPTION: Development of the river to protect and enhance the existing qualities which resulted in its classification as a National Recreational River under the Wild and Scenic Rivers System. The qualities include scenic, recreational, fish and wildlife, and cultural values of the river reach. Development includes recreation facilities, river access sites, threatened and endangered species habitat, erosion protection, and acquisition of scenic easements.

AUTHORIZATION: Section 707 of the National Parks and Recreation Act of 1978.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit - remaining cost ratio is not available because monetary benefits have not been quantified.

TOTAL BENEFIT-COST RATIO: N/A

INITIAL BENEFIT-COST RATIO: N/A

BASIS OF BENEFIT-COST RATIO: N/A

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$21,000,000
Scheduled Construction	$ 1,715,000	
Unscheduled Construction	19,285,000	
Estimated Non-Federal Cost		633,000
Scheduled Construction		
Cash Contribution	$ 0	
Other Costs	633,000	
Estimated Non-Federal Cost		0
Unscheduled Construction		
Cash Contributions	0	
Other Costs	0	

STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Myron Grove River Access	100	Jun 1987
Habitat for Threatened and Endangered Species	40	Sep 1992
Yankton-Riverside Park Access Recreation Site	16	Sep 1990
Remaining Project	0	Unscheduled
Entire Project 1/	72	Sep 1992

1/ Completion date is for elements currently underway. Balance of elements are unscheduled.

Division: Missouri River District: Omaha Missouri National Recreational River, Nebraska and South Dakota

PHYSICAL DATA

Total Estimated Scheduled Construction Costs	1,715,000
Total Estimated Unscheduled Construction Costs	19,285,000
Total Estimated Project Cost	$21,633,000
Allocations to 30 September 1989	920,000
Conference Allowance for FY 1990	620,000
Allocation For FY 1990	611,000 1/
Allocations through FY 1990	1,531,000
Allocation Requested for FY 1991	83,000
Scheduled Balance to Complete after FY 1991	101,000
Unscheduled Balance to Complete after FY 1991	$19,285,000

Length: 59 miles of uncontrolled river.
Area: Approximately 19,600 acres within the designated corridor.

Pct. of Est. Fed. Cost
7
8

1/ Reflects reduction of $9,000 sequestered in accordance with the Gramm-Rudaan-Hollings Act.

JUSTIFICATION: Designation as a Recreational River will preserve outstanding and important values and will provide additional opportunities for river access and recreation use. The project will provide for 563,000 visitor days for general recreation and 187,000 visitor days for fish and wildlife recreation. Erosion control will also be provided to the extent it is supported by local interests and is compatible with recreational river status. The project reach is one of the few remaining reaches of the Missouri River that is essentially free of man-made structures, and it still offers an example of the dynamics of a free-flowing river in a relatively natural state.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Biological Assessment	$ 5,000
Continue island clearing and improvement to provide threatened and endangered species habitat.	39,000
Engineering and Design and Supervision and Administration-General Work	15,000
Complete reimbursement to non-Federal sponsor for Yankton Riverside Park Recreation Facilities	24,000
Total	$ 83,000

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NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Myron Grove River Access Pay one-half of the separable costs of recreation facilities and bear all costs of operation, maintenance, and replacement of recreation facilities.	$ 33,000	$ 13,000
Total Non-Federal Costs	$ 33,000	$ 13,000
Yankton Riverside Park Pay one-half of the separable costs of recreation facilities and bear all costs of operation, maintenance, and replacement of recreation facilities.	$ 600,000	$ 77,000
Total Non-Federal Costs	$ 600,000	$ 77,000
General Work Pay 25 percent of the first costs of fish and wildlife enhancement, and of the costs of operation, maintenance, and replacement of fish and wildlife facilities.	1/	1/
Total Non-Federal Costs	1/	1/

1/ Costs to be developed as planning on project proceeds.

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STATUS OF LOCAL COOPERATION: In general, all agencies and local citizens and groups are in favor of the project; it was their cooperation that resulted in congressional action. Local interests will be contacted as specific requirements are developed. Potential sponsors are the South Dakota Game, Fish and Parks Department; Union, Clay, and Yankton Counties in South Dakota; the Lewis and Clark Natural Resources District; and Cedar and Dixon Counties in Nebraska. An agreement, pursuant to Section 215 of the Flood Control Act of 1968, has been signed with the city of Yankton. This agreement is for the construction of recreation facilities at Riverside Park, Yankton, South Dakota, scheduled for completion by September 1990. Because of their desire to do the construction themselves, the local sponsor has been allowed to design and construct with reimbursement from the Corps.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $21,000,000 is unchanged from the latest estimate presented to Congress (Fiscal Year 1990) and is limited to that amount by the project authorization. The estimate includes the following items:

Item	Amount
Price Escalation on Construction Features	$ +780
Estimating Adjustments	-780
Total	$ 0

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Environmental Protection Agency on 12 August 1980.

OTHER INFORMATION: Funds to initiate planning were appropriated in Fiscal Year 1980. A cooperative agreement between the U.S. Department of the Interior and the U.S. Department of the Army for implementation of this project was signed on 1 February 1980.

A demonstration program to clear five islands of vegetation was initiated at 100 percent Federal cost to protect Federally-listed threatened and endangered species on the project. Two islands have been cleared of vegetation to provide habitat for the threatened piping plover and endangered interior least tern. Because of scheduling conflicts, work originally to be performed in the spring of 1988 was delayed. To control vegetation, herbicides will be applied to the islands during the summer of 1990. The three remaining islands are scheduled for clearing in 1991. The five cleared islands will be monitored annually for habitat changes and threatened and endangered species use through 1992.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Papillion Creek and Tributaries Lakes, Nebraska (Continuing)

LOCATION: The Papillion Creek Basin is located in Washington, Douglas, and Sarpy Counties in eastern Nebraska. The basin drains the western part of the Omaha Metropolitan area.

DESCRIPTION: The active project consists of a series of four dams and reservoirs on tributaries of Papillion Creek in Douglas and Sarpy Counties, Nebraska, channel improvement on Big Papillion Creek, a basin-wide flood warning system in Douglas County, Nebraska, and an effluent storage facility upstream of Site 18.

AUTHORIZATION: 1968 Flood Control Act, and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.2 to 1 at 3 1/4 percent for Site 18 and 8 7/8 percent for the channel.

TOTAL BENEFIT-COST RATIO: 2.4 to 1 at 8 7/8 percent for the channel and 3 1/4 percent for the remainder.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 3 1/4 percent (Fiscal Year 1971)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest approved evaluations as follows:

Site 11 - Design Memorandum (DM) report approved August 1972 at 1972 price levels.

Site 16 - DM report approved March 1972 at 1971 price levels.

Site 18 - Specific DM report approved February 1982 at 1982 price levels.

Site 20 - Specific DM report approved July 1981 at 1981 price levels.

Channel - General DM report approved May 1989 at 1989 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement	$59,500,000
Future Non-Federal Reimbursement	4,537,000
Estimated Federal Cost (Ultimate)	54,963,000

SUMMARIZED FINANCIAL DATA

Estimated Non-Federal Cost		7,247,000
Cash Contributions	490,000	
Other Costs	2,220,000	
Reimbursements	4,537,000	
Total Estimated Project Cost		$62,210,000

		Accum.
Allocations to 30 September 1989	50,427,000 1/	Pct. of
Conference Allowance for FY 1990	2,500,000	Est. Fed.
Allocation for FY 1990	3,271,000 2/	Cost
Allocations through FY 1990	53,698,000	90
Allocation Requested for FY 1991	2,905,000	95
Scheduled Balance to Complete after FY 1991	2,897,000	
Unscheduled Balance to Complete after FY 1991	0	

STATUS (1 Jan 1990)

	PERCENT COMPLETE	COMPLETION SCHEDULE
Site 11	100	
Site 16	100	
Site 18 (Closure Jul 84)		
Land Acquisition	100	
Construction	88	Nov 1991
Site 20 (Closure Sep 82)		
Land Acquisition	100	
Construction	99	Apr 1990
Effluent Storage Facility	94	May 1990
Big Papillion Creek Channel	0	Aug 1992
Entire Project		Aug 1992

1/ Excludes $1,854,000 planning costs applicable to inactive units.

2/ Reflects $35,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $806,000 reprogrammed to the project.

PHYSICAL DATA

Dams:

Number: 4
Height: 53 ft to 59 ft
Length: 1,480 ft to 2,450 ft

Relocations:

Roads, Utilities and Structures $ 7,946,000

Spillways:

Remote-earth-seeded (4 dams)

Channel:

Length: 2 miles (approx.)
Level of protection: 50-year Flood
Location: Big Papillion Creek

Lands and Damages:

Acres: 4,254
Type: Predominantly agricultural with transition to urban.

Improvements: Farm Units

Outlet Works:

Drop inlet type with conduits varying from 3 ft to 5 ft in diameter.

Reservoir Capacity: (Total Project)

Multiple-Purpose	11,540 acre-feet
Flood Control	18,143 acre-feet
Total	29,683 acre-feet

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JUSTIFICATION: The project, consisting of Dam Sites 11, 16, 18, 20, Big Papillion Creek channel improvement between West Center Road and L Street in Omaha, the basin wide flood warning system, and the effluent storage facility upstream of Site 18, will provide urgently needed flood protection to the expanding metropolitan area of Omaha while augmenting streamflows and materially aiding in meeting the requirements of land and water-based recreation. The flood problem is severe under the present stage of urban development. Major floods occurred in the basin on 16 June 1964 and 6-7 September 1965. Seven lives were lost in the flood of June 1964; and damages estimated at $4,962,000 were sustained, mostly in urban areas. The flood of September 1965 caused an estimated $529,000 damages, again mostly urban. The total project would reduce the flood damage potential by 60 percent. Average annual flood damages, with the four constructed dams in place, are estimated at $2,091,000 (1989 price levels). With the channel improvement the flood damage potential would be reduced to $1,501,000. The plan for recreational development will support an annual visitation of 1,100,000 visitor days. The estimated average annual benefits, based on various price levels, are as follows:

Annual Benefits	Site 11 1972 Price Level 3.25%	Site 16 1971 Price Level 3.25%	Site 18 1982 Price Level 3.25%	Site 20 1981 Price Level 3.25%	Channel 1989 Price Level 8.875%	Total
Flood Control	$1,512,800	$169,800	$488,900	$158,000	$861,900	$3,191,400
Water Quality Control	4,000	0	4,000	4,000	0	12,000
Recreation, General	275,700	118,600	475,000	423,000	86,400	1,378,700
Recreation, Fish and Wildlife	39,300	8,900	17,000	28,000	0	93,200
Total	$1,831,800	$297,300	$984,900	$613,000	$948,300	$4,675,300

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue channel, levee and recreation construction, Big Papillion Creek Channel	$2,039,000
Complete revegetation and continue Stage II recreation construction, Site 18	632,000
Engineering & Design, Big Papillion Creek Channel	20,000
Engineering & Design, Site 18	51,000
Supervision and Administration, Big Papillion Creek Channel	128,000
Supervision and Administration, Site 18	35,000
Total	$2,905,000

NON-FEDERAL COST: In accordance with the project authorization and with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Site 11		
Pay one-half of the separable cost allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	$ 640,000	$ 128,100
Total Non-Federal Costs	$ 640,000	$ 128,100
Site 16		
Pay one-half of the separable cost allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	$ 313,000	$ 59,800
Total Non-Federal Costs	$ 313,000	$ 59,800
Site 18		
Pay one-half of the separable cost allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	$1,662,000	$ 100,000
Total Non-Federal Costs	$1,662,000	$ 100,000

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NON-FEDERAL COST (Continued):

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Effluent Storage Facility		
Pay 25 percent of the total cost including lands, easement, rights of ways, relocations and disposal areas and bear all costs of operation, maintenance, and replacement in accordance with Public Law 99-591.	$ 391,000	$ 4,000
Total Non-Federal Costs	$ 391,000	$ 4,000
Site 20		
Pay one-half of the separable cost allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	$1,994,000	$ 35,000
Total Non-Federal Costs	$1,994,000	$ 35,000
Big Papillion Creek Channel		
Provide lands, easements, rights of way, and dredged material disposal areas	$1,360,000	0
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	$ 240,000	0

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NON-FEDERAL COST (Continued):

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Big Papillion Creek Channel (Continued)		
Pay one-half of the separable cost allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities	$ 48,000	$ 10,000
Pay 25 percent of the costs allocated to non-structural flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	$ 57,000	$ 10,700
Pay 5 percent of the costs allocated to structural flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	$ 385,000	$ 22,000
Total Non-Federal Costs	$2,090,000	$ 42,700

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STATUS OF LOCAL COOPERATION: Contracts with the city of Omaha to sponsor recreational development on Sites 11 and 16 were approved by the Secretary of the Army on 8 June 1973 and 18 February 1972, respectively. On 16 March 1982, the Omaha City Council approved the recreation cost-sharing contract for Site 18. However, because of perceived pollution problems, the city of Omaha, by letters dated 30 November 1984, 13 May 1985, and 21 June 1988, stated the City's intention to delay responsibility as the local sponsor until the water quality issues were resolved. Former Mayor Boyle also requested that the Corps defer expenditure on recreation facilities and that the lake not be impounded until a solution was developed. The city of Omaha developed a plan for resolving the water quality problem at Site 18 which would divert treated effluent into a holding basin for eventual use in irrigating a nearby golf course; however, due to problems in obtaining the necessary local permits to build the facility, that plan has been revised. The city of Omaha developed an alternate plan to divert the treated effluent into a holding basin at a different location for discharge into the Elkhorn River with an additional capability to irrigate the golf course. On 30 August 1988, the City of Omaha Parks Department requested that the Corps resume the design of the recreation facilities in anticipation of a resolution to the effluent problem. Construction of this storage facility was authorized by Public Law 99-591 and requires a Local Cooperation Agreement (LCA) with a non-Federal sponsor.

STATUS OF LOCAL COOPERATION (Continued):

The LCA was signed by the Assistant Secretary of the Army (Civil Works) on 9 June 1989. During construction of the storage lagoon, animal health waste, such as, needles and vaccine bottles, was uncovered. The material have been excavated and stockpiled pending determination of the method of disposal. Construction is scheduled for completion in May 1990. A contract with Papio-Missouri Natural Resources District (NRD) to sponsor recreation on Site 20 was approved by the Secretary of the Army on 23 April 1974. The Big Papillion Creek Channel Improvement Project was authorized by P.L. 99-662, the Water Resources Development Act of 1986, which requires a non-Federal sponsor. The draft LCA, with the Papio-Missouri Natural Resources District is currently under review. Since the enactment of the Flood Disaster Protection Act of 1973, P.L. 93-234, land use regulations in the flood plain have been put into effect. A channel improvement and maintenance program on the Papillion Creek Channels was initiated in 1968 by the Papio Watershed Advisory Board on behalf of Douglas and Sarpy Counties to aid in meeting the requirement for downstream maintenance. The Papio-Missouri NRD, formed in 1972, has since taken over these responsibilities. To date, about $1,370,000 has been spent on 19.0 miles of channel improvement and $975,000 on maintenance.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $59,500,000 is an increase of $1,100,000 from the latest estimate ($58,400,000) presented to Congress (Fiscal Year 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 672,000
Estimating Adjustments to reflect revised recreation master plans, Sites 18 and 20; reanalysis of requirements for E&D and S&A, Sites 18 and 20	428,000
Total	$1,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Council on Environmental Quality (CEQ) on 23 November 1971. A Supplemental Information Report, which discusses the impacts of construction on Dam 20, was filed with the Environmental Protection Agency (EPA) on 19 February 1982. A supplement EIS, which discusses the impacts of construction of Dam Site 18, was filed with the EPA on 24 August 1982. A final supplement III to the EIS which addresses the impact of the Big Papillion Creek Channel was filed with the EPA on 26 March 1986.

OTHER INFORMATION: As authorized, the project consisted of a system of 21 dams for flood control, recreation, and water quality. Funds to initiate preconstruction planning were appropriated in Fiscal Year 1970, for land acquisition in Fiscal Year 1971, and for construction in Fiscal Year 1972. Construction was initiated on Site 16 in Fiscal Year 1972, on Site 11 in Fiscal Year 1973, on Site 20 in Fiscal Year 1981, and on Site 18 in Fiscal Year 1983.

OTHER INFORMATION (Continued):

A dam at Site 17 was constructed by a private developer.

A restudy of remaining flood problems in the Papillion Creek Basin was directed by the Appropriations Committees in the Reports on Fiscal Year 1982 Appropriations. The report on the restudy, dated 12 June 1986, recommended a 50-year channel and Union Pacific Railroad (UPRR) bridge improvement on the Big Papillion Creek between West Center Road and L Street, with a recreation trail located within the right-of-way, a basin wide flood warning system, and deauthorization of the remaining unconstructed dams of the originally authorized plan. This work was then authorized by the Fiscal Year 1987 Continuing Appropriations Act and the Water Resources Development Act of 1986 and has been included in the project.

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APPROPRIATION TITLE: Construction, General - Multiple-Purpose Projects Including Power

PROJECT: Harry S. Truman Dam and Reservoir, Missouri (Continuing)

LOCATION: The damsite is located on the Osage River about 1-1/2 miles northwest of Warsaw, Benton County, Missouri. The reservoir extends upstream into Bates, Henry, Hickory, St. Clair, and Vernon Counties, Missouri.

DESCRIPTION: The dam includes a six-unit powerplant, a four-gate overfall spillway with a crest elevation at 692.3 feet (ft.) mean sea level (m.s.l.) and an embankment with a top elevation of 756 ft. m.s.l. The rolled earth embankment is about 5,000 feet long and rises a maximum of 126 feet above the streambed. Around the 958-mile shoreline at multipurpose pool level, 21 public use areas are operating.

AUTHORIZATION: 1954 and 1962 Flood Control Acts

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because the project is nearing completion and is operational. Work remaining is primarily to ensure timely gate closings during emergency conditions.

TOTAL BENEFIT-COST RATIO: 1.6 to 1 at 3 percent (Oct 1984 price level)

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 3 percent (FY 1965)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in the Report on the Future Direction of Hydropower dated November 1985 and approved in January 1986 at October 1984 price levels.

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SUMMARIZED FINANCIAL DATA		
Estimated Total Appropriation Requirement		$549,000,000
Future Non-Federal Reimbursement		138,688,000
Estimated Federal Cost (Ultimate)		410,312,000
Estimated Non-Federal Cost		138,688,000
Reimbursement:	$138,688,000	
Power $138,688,000		
Total Estimated Project Cost		549,000,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Land Acquisition	100	
Relocations	100	
Dam and Powerplant (Closure Jul 1977)	96	Sep 1992
Recreation Facilities	100	
Power on Line		Aug 1982
Buildings, Grounds & Utilities	100	
Downstream Measures	100	
Entire Project	98	Sep 1992

Division: Missouri River District: Kansas City Harry S. Truman Dam and Reservoir, Missouri

SUMMARIZED FINANCIAL DATA (Cont'd)		ACCUM PCT OF ESTIM FED COST
Allocations to 30 September 1989	$535,618,000	
Conference Allowance for FY 1990	3,900,000	
Allocation for FY 1990	3,172,000 1/	
Allocations through FY 1990	538,790,000	98
Allocation Requested for FY 1991	3,495,000	99
Scheduled Balance to Complete after FY 1991	6,715,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $376,000 assigned as savings and slippage, $40,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $312,000 reprogrammed from the project.

PHYSICAL DATA

Dam:
Type - Rolled earthfill
Height - 96 feet (average)
Length - 5,000 feet

Power Installation:
Initial and Ultimate:
6 Units: Total 31,000 kW and 160,000 kW
Presently planned:
6 Units: Total 31,000 kW
Average Gross Head: 43 feet

Relocations:
Roads - 175 miles $89,810,000
Railroads - 14 miles
M-K-T $16,524,000
Other $1,108,000
Cemeteries, Utilities & Structures $39,232,000

Lands and Damages: Acres - 268,900
Type - Predominantly agricultural
Improvements - Typical farm units
Towns and Cities $11,905,000
Mines and Resorts $7,887,000

Reservoir Capacity:
Flood Control - 3,918,000 acre-feet
Multipurpose - 1,040,000 acre-feet 2/
Sedimentation - 244,000 acre-feet
Full Pool - 5,202,000 acre-feet

Spillway: Type - Gated overfall

2/ For power, recreation, fish and wildlife, and low-flow supplementation.

JUSTIFICATION: The Harry S. Truman Dam and Reservoir is the largest unit of the authorized seven-lake system in the Osage basin. It controls the runoff from more than 5 million acres of uncontrolled drainage area downstream from the other six authorized lakes. From 1979 through FY 1989 the project prevented about $234,089,000 in flood damages. Of these damages prevented to date, approximately $219.3 million were prevented during the September-October, 1986 event, the flood of record in the Upper Osage River Basin.

The Harry S. Truman Dam and Reservoir is the most important unit for control of floods in these areas. In addition, the multipurpose pool provides for the generation of hydroelectric power. The installed power facilities are capable of generating 160,000 kilowatts. The pumping feature is not being used because it produces unacceptable fish kills, which available techniques cannot prevent. The project without pumping has a dependable capacity of 31,000 kilowatts and will produce average annual energy of 259,100,000 kilowatt-hours. In addition, Harry S. Truman Dam and Reservoir increases the capability of a private power project about 90 miles downstream. Recreation and fish and wildlife benefits are also provided by the multipurpose pool and project lands.

The estimated average annual benefits, based on 1 October 1984 prices, are as follows:

Annual Benefits	Amount
Flood Control	$16,649,000
Power	18,208,000
Recreation	5,129,000
Fish and Wildlife	891,000
Total	$40,877,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue relocation of utilities and municipal facilities	$212,000
Continue construction of remaining power plant items	1,716,000
Continue miscellaneous expenses for distributive costs	109,000
Continue condemnation payments	163,000
Complete outlet channel erosion protection	432,000
Complete expenses for minor dam items	424,000
Engineering and design	216,000
Supervision and administration	223,000
Total	$3,495,000

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NON-FEDERAL COSTS: Costs allocated to power are reimbursable. The construction cost allocated to power is estimated at $138,688,000 through updating the original cost allocation. A change in the allocated costs is possible. The Corps of Engineers and the Southwestern Power Administration, Department of Energy, are working toward resolution of differences regarding the cost allocation. Costs allocated to annual operation, maintenance and replacement (OM&R) of the power facilities are estimated at $2,015,000 (1 October 1989).

STATUS OF LOCAL COOPERATION: None required for scheduled construction. Responsibility for repayment of power rests with the marketing agency of the Department of Energy, the Southwestern Power Administration (SWPA).

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $549,000,000 is a decrease of $5,000,000 from the latest estimate ($554,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$658,000
Design Changes	-9,342,000
Post Contract Award and Other Estimating Adjustments	3,684,000
Total	$-5,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement (EIS) was filed with the Council on Environmental Quality (CEQ) on 28 February 1973. A supplement to the final EIS was filed with CEQ on 21 September 1973, and an appendix to the supplement was filed with CEQ on 10 December 1973. The final supplement, concerning downstream measures, was filed with the Environmental Protection Agency (EPA) on 28 November 1980.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1959. Funds for advance relocation of Missouri State Highway 13 were appropriated in FY 1962 and for the initial construction of the dam and reservoir in FY 1965.

The first power unit was placed on line on 22 December 1979. Restricted commercial power production with the first unit (Unit 6) became available in August 1981. Subsequent to mechanically successful pump tests on 13 and 14 April, Units 4 and 5 were declared commercially operable by SWPA on 1 May 1982. No other units have been declared commercially operable by SWPA. All six units have successfully generated power, but one or two units at a time will be out of service for repairs and modifications until mid-1992.

During pumping tests of the power units in April 1982, fish were drawn into the units and killed. Numerous potential solutions were studied, but none were satisfactory. The pumped storage feature will not be used unless fish protection technology advances to the point that protection is biologically and economically feasible.

OTHER INFORMATION: (Continued)

The present hydropower benefit is based on project operation without pumping and with up to four units generating from the power pool, and up to six units from the flood pool. Studies of modifications to the power operation to maximize the benefits and revenues were completed in November 1985. Most of the alternatives were not feasible. Coordination with the Southwestern Power Administration is continuing in an attempt to resolve differing approaches to allocating costs.

The Harry S. Truman Coordination Team was formed in 1983 by the Governor of Missouri and the Missouri River Division Engineer. The team acts as a public forum for the exchange of information regarding operation of the project. On 3 December 1987, the Kansas City District Engineer advised the Coordination Team of his decision to increase the power output of the project when generating from the power pool outside the peak recreation season. Several members of the Coordination Team including representatives of State agencies expressed opposition to the plan. The increased operation began on 8 December 1987. A Congressional delegation from Missouri met with the Assistant Secretary of the Army for Civil Works on 5 February 1988 specifically to discuss the Truman hydropower operation. The Assistant Secretary agreed at that meeting to suspend generation from the power pool using more than four units beginning 8 February 1988. In a letter to the Secretary of the Army, the Congressmen represented at that meeting recommended a series of guidelines for future power operations. Meetings among representatives of Missouri State agencies, power interests, and the Kansas City District on March 11, and June 22, 1988, identified an impasse in implementing the intent of the guidelines. However, the June 22 meeting also produced an agreement to form a five-member negotiation team to attempt to identify a project operation acceptable to the full range of public interests affected. The team is composed of two members nominated by the Governor of Missouri, two members nominated by the Administrator of the Southwestern Power Administration, and the Kansas City District Engineer. The negotiating team met in confidential sessions on 26 July, 23 September, and 24 October 1988. The outlook for success was encouraging after the September meeting, but at the October meeting the negotiations reached an impasse. The District Engineer visited the SWPA Administrator on 28 November and the Governor of Missouri on 1 December 1988. As a result of those visits and related correspondence, the negotiation process continued on 3 August 1989. An interim operating plan has been formulated and forwarded for review and approval by the Assistant Secretary of the Army (Civil Works).

Between 1974 and 1980, a plan to offset the adverse effects of the power operation on nearby Warsaw was developed. Measures recommended in 1980 within the authority of the Chief of Engineers are complete. Acquisition of 510 acres downstream of the project, as recommended in the 1980 report, was reconsidered. The reduced frequency of power generation experienced without pumping results in a reduced threat to downstream vegetation and wildlife habitat compared to the conditions evaluated in 1980. The Water Resources Development Act of 1986 authorized the Secretary of the Army to acquire lands or designate project joint-use lands for mitigation of fish and wildlife losses at Harry S. Truman Dam and Reservoir except that the total acreage of all mitigation lands shall not exceed 1,000 acres. The acquisition and/or management of these lands will not be required for the foreseeable future because the use of pumping has been deferred. However, the acquisition and/or management of land for fish and wildlife mitigation could be required in conjunction with any future adjustment of the hydropower operation that increases the frequency of power generation.

29 JAN 1990

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation

a. Channels and Harbors

The program request of $6,385,000 provides for maintenance of bank stabilization and channel alignment structures on the Missouri River between Sioux City, Iowa and the mouth. A stable bank is necessary to prevent erosion of valuable farmlands and provide a secure alignment for flood control levees along the banks, as well as provide a navigable channel.

PROJECT	OBLIGATIONS ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
Iowa				
Missouri River, Sioux City, Iowa to the Mouth	7,347,000	5,975,000	6,380,000	Dredging in FY89.
Small Navigation Project at Sioux City, Iowa - Section 107	0	5,000	5,000	
Total - Channels and Harbors	7,347,000	5,980,000	6,385,000	
b. Locks and Dams	NONE			
TOTAL - NAVIGATION	7,347,000	5,980,000	6,385,000	

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control

a. Reservoirs

The program request of $23,493,000 includes funds for the operation and maintenance of 24 flood control projects, including essential repair work and scheduling of flood control reservoir operations within the Division. The estimates also include application of Special Recreation Use Fees for recreation areas and recreation facilities at completed projects. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, materials and parts for day-by-day functioning of projects; periodic maintenance, repairs and replacements; cultural resource needs; and contract law enforcement.

PROJECT	OBLIGATIONS ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
Colorado				
Bear Creek Lake	243,000	330,000	335,000	Renovate intake conduit and preparation of master plan in FY90. Instrument maintenance, five-year periodic inspection and formal report in FY91.
Chatfield Lake	492,000	823,000	650,000	Renovate intake gates, continue master plan update, and replace data collection platforms in FY90. Replace piezometer, additional baseline field surveys and project brochures in FY91.
Cherry Creek Lake	482,000	816,000	441,000	Renovate service gates and hydraulic system in FY 90.

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29 JAN 1990

MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

PROJECT	OBLIGATIONS ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
Iowa				
Rathbun Lake	1,535,000	1,469,000	1,480,000	
Kansas				
Clinton Lake	1,205,000	1,277,000	1,364,000	
Hillsdale Lake	807,000	610,000	961,000	Extend upstream riprap and revise dam contingency plan in FY 89. Repair south access road in FY 91.
Kanopolis Lake	2,127,000	2,689,000	1,304,000	Install dam foundation drain and renovate Venango Public Use Area in FY89. Install seepage control system in FY89 and FY90.
Melvern Lake	1,197,000	1,402,000	1,375,000	Conduct periodic inspection and prepare report in FY90.
Milford Lake	1,536,000	1,828,000	2,039,000	Replace relief wells in FY 90. Purchase rock to protect embankment in FY 91.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

PROJECT	ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF CHANGES
Kansas (Cont'd)				
Perry Lake	1,651,000	1,818,000	1,503,000	Construct Slough Creek boat ramp in FY90.
Pomona Lake	1,262,000	1,231,000	1,251,000	
Tuttle Creek Lake	1,666,000	1,859,000	1,360,000	Replace relief wells in FY90.
Wilson Lake	1,234,000	1,204,000	1,171,000	
Missouri				
Little Blue River Lakes	838,000	737,000	840,000	Acquisition of permanent operating equipment in FY89. Install embankment drain interceptor pipe in FY91.
Long Branch Lake	627,000	606,000	555,000	
Pomme de Terre Lake	1,346,000	1,376,000	1,402,000	
Smithville Lake	1,246,000	974,000	1,047,000	Resurface road across dam, and seal Litton Visitor Center road and parking lot in FY89.

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs (Cont'd)

PROJECT	ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
Nebraska				
Harlan County Lake	1,108,000	1,242,000	1,296,000	Conduct periodic inspection and prepare report in FY90.
Papillion Creek and Tributaries Lakes	709,000	618,000	640,000	Stabilize reservoir banks and realign outlet channel at Site 11, and increase emergency rock stockpile in FY89.
Salt Creek and Tributaries Lakes	700,000	822,000	660,000	Acquire land for flowage easement, at Holmes Lake in FY 90 due to original survey error.
North Dakota				
Bowman-Haley Lake	177,000	229,000	222,000	Natural resource management activities diverted to support drought related activities at Garrison Dam in FY 89.
Pipestem Lake	267,000	315,000	336,000	5-year periodic inspection in FY90.

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

a. Reservoirs (cont'd)

PROJECT	ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
South Dakota				
Cold Brook Lake	188,000	218,000	274,000	Dam safety reconnaissance report in FY90 and FY91. Prepare plan of study and complete revision of master plan in FY 91.
Cottonwood Springs Lake	99,000	144,000	147,000	Conduct periodic dam inspection and chip and seal paved roads in FY90. Prepare plan of study and complete revision of master plan and prepare periodic dam inspection report in FY 91.
Scheduling of Flood Control Reservoir Operations	454,000	572,000	642,000	Evaluation of potential flood damage prevention on existing projects and replace data collection platforms in FY90 and FY91.
Total -- Reservoirs	23,196,000	25,209,000	23,439,000	

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QUESTIONS SUBMITTED BY MR BEVILL

Mr. BEVILL. I am going to submit my questions for the record.
[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

RALSTON AND LEYDEN CREEKS, COLORADO

Mr. BEVILL. Has a cost sharing agreement been signed for the feasibility phase of the Ralston and Leyden Creeks, Colorado study? When is the feasibility phase scheduled to begin?

Colonel WITHERSPOON. No, sir. The feasibility cost sharing agreement is scheduled to be signed in May 1990, and the feasibility study will begin shortly thereafter when cost sharing funds are provided by the sponsor.

BLUE RIVER BASIN, KANSAS CITY, MISSOURI

Mr. BEVILL. Why is a revised cost sharing agreement being negotiated for the Blue River Basin, Missouri feasibility study?

Colonel WITHERSPOON. The scope of the study was expanded to include alternative alignments to avoid a closed city landfill that may contain hazardous substances. The sponsor of the study, Kansas City, Missouri, signed the revised feasibility cost sharing agreement in January 1990.

ST. JOSEPH, MISSOURI, AND VICINITY

Mr. BEVILL. What will become of the St. Joseph, Missouri, and Vicinity study if the revenue issue for cost sharing the feasibility study is not agreed to? Please keep the Committee advised of the status of the cost sharing agreement for this project.

Colonel WITHERSPOON. The study sponsor, St. Joseph, Missouri, is evaluating other options including the possibility of reducing the scope of the study. The Committee will be kept advised of the status of the cost sharing agreement.

MISSOURI RIVER FISH AND WILDLIFE MITIGATION

Mr. BEVILL. Is the Missouri River Fish and Wildlife Mitigation project subject to the automatic deauthorization provisions of P.L. 99-662? When would deauthorization occur?

Colonel WITHERSPOON. Yes, sir. Although the project is subject to the automatic deauthorization provisions of the law, the obligation of funds in Fiscal Year 1990 prevents the automatic deauthorization of the mitigation project.

CHATFIELD LAKE, COLORADO

Mr. BEVILL. Will the Chatfield Lake, Colorado, project be completed this fiscal year as scheduled?

Colonel WITHERSPOON. No, sir. Downstream channel recreation facilities are being constructed by the local sponsor, with reimbursement from the Corps for its share. However, the work has not proceeded as scheduled due to lack of non-Federal funds. Completion is now scheduled in Fiscal Year 1991. Funds are available to reimburse local interests for the Federal share when their construction is completed.

MISSOURI RIVER LEVEE SYSTEM
IOWA, NEBRASKA, KANSAS, AND MISSOURI

Mr. BEVILL. Why is the scheduled balance to complete the Missouri River Levee System project higher this year than last?

Colonel WITHERSPOON.The preconstruction engineering and design estimate for Unit L385 has been increased, and the completion date for preconstruction engineering and design has been extended, This is due primarily to the need to reformulate the project, revise the General Design Memorandum, and to prepare structural and pumping plant Feature Design Memoranda.

Mr. BEVILL. Please explain the need to reformulate Unit L385 of the Missouri River Levee System project.

Colonel WITHERSPOON. The General Design Memorandum was returned to the Kansas City District for resolution of comments based on Washington level review. The major concern is the substantial location benefit for a one-time increase in the market value of undeveloped land with the project in place. The Kansas City District is in the process of looking at alternative alignments that would protect only existing development.

Mr. BEVILL. What is included in the "sundry" item of cost increases for the Missouri River Levee project?

Colonel WITHERSPOON. The sundry item reflects an increase in Federal cost due to an adjustment in the required non-Federal cash contribution for Unit L385. The current cost distribution is based on the cost estimate presented in the Unit L385 General Design Memorandum.

MISSOURI NATIONAL RECREATIONAL RIVER NEBRASKA AND SOUTH DAKOTA

Mr. BEVILL. Why is the majority of the work on the Missouri National Recreational River project shown as unscheduled?

Colonel WITHERSPOON. Most of the remaining work on this project is construction of bank stabilization. However, bank stabilization is not in accord with current Administration priorities; and there is a lack of local sponsorship for remaining recreation facilities work. Therefore, this work is unscheduled.

Mr. BEVILL. Why has the date for completion of habitat for threatened and endangered species on the Missouri National Recreational River slipped two years?

Colonel WITHERSPOON. Clearing of vegetation to provide habitat for the threatened piping plover and endangered interior least tern has been completed for two of the five islands originally scheduled to be cleared by September 1990. However, we decided to test the application of herbicides for controlling the revegetation of the two cleared islands before proceeding with the clearing of the three remaining islands. The remaining islands are now scheduled for clearing in 1991. The five cleared islands will be monitored for habitat changes and threatened and endangered species use through 1992.

PAPILLION CREEK AND TRIBUTARIES LAKES, NEBRASKA

Mr. BEVILL. The FY 1990 conference agreement provided an additional $500,000 for the Papillion Creek and Tributaries Lakes, Nebraska, project to be used for the Big Papillion Creek element of the project. Are these funds being utilized as directed by Congress?

Colonel WITHERSPOON. Yes, sir. Plans and specifications are underway for the Phase I construction contract on this project. A draft Local Cooperation Agreement was completed in November 1989 and is currently under review at the Washington level. Signing of the final LCA by the local sponsor, the Papio - Missouri Natural Resources District, is scheduled for February; and award of the first contract is scheduled for July 1990.

Mr. BEVILL. The justification material for the Papillion Creek and Tributaries Lakes project describes a situation where animal health waste that was uncovered during construction has been stockpiled awaiting disposal. How will the cost of disposal of those materials be shared?

Colonel WITHERSPOON. The disposal of the materials will be considered as a part of the cost of constructing the effluent storage facility with 25 percent of the funding provided by the local sponsor.

HARRY S. TRUMAN DAM AND RESERVOIR, MISSOURI

Mr. BEVILL. When do you expect the Assistant Secretary of the Army (Civil Works) to complete his review of the interim operating plan for the Harry S. Truman Dam?

Colonel WITHERSPOON. I expect the Assistant Secretary of the Army for Civil Works to complete his review very soon. The Kansas City District Engineer briefed him on 28 November 1989. The District Engineer also briefed the Congressional delegations on 14 December 1989 and on 23 January 1990, and held a public meeting in Warsaw, Missouri, on 31 January 1990.

Mr. BEVILL. When will turbine repairs be completed at the Harry S. Truman Dam?

Colonel WITHERSPOON. The first stage repair contract for two of the six units is scheduled for completion in September 1990. The second stage repair contract for the remaining four units is scheduled for award in August 1990 with completion scheduled for May 1993.

TRIMBLE WILDLIFE AREA
SMITHVILLE LAKE, MISSOURI

Mr. BEVILL. What is the status of the Trimble Wildlife Area, Smithville Lake, Missouri project?

Colonel WITHERSPOON. The Kansas City District paid the Missouri Department of Conservation $1,570,000 earlier this month for the Corps' participation in the development of wildlife management measures and facilities. The project is complete.

BEDFORD, IOWA

Mr. BEVILL. What is the status of the Bedford, Iowa, Section 205 project?

Colonel WITHERSPOON. The Kansas City District provided the City of Bedford a draft Detailed Project Report at the end of Fiscal Year 1989. The draft report recommends a concrete grade control structure located about 750 feet downstream of an existing low-head dam, plus bank stabilization measures on the right bank of the East Fork of the One Hundred and Two River between the proposed new structure and the low-head dam. The total estimated cost of the project is $2,160,000. The city is currently seeking a method of financing its share of project costs.

MISSOURI NATIONAL RECREATIONAL RIVER NEBRASKA AND SOUTH DAKOTA

Mr. BEVILL. Are you complying with the directions in House Report 101-96 regarding operation and maintenance of existing structures on the Missouri National Recreation River project?

Colonel WITHERSPOON. Yes, sir. We are using the appropriated funds to repair existing bank protection structures on this project.

BOX ELDER CREEK BASIN, COLORADO

Mr. BEVILL. Why have no funds been requested to continue the Box Elder Creek Basin, Colorado, feasibility study?

Colonel WITHERSPOON. No economically feasible projects were identified in the reconnaissance study; therefore, continuation into a feasibility study was not warranted.

MISSOURI RIVER LEVEE SYSTEM REEVALUATION

Mr. BEVILL. What is the status of the Missouri River Levee System Reevaluation feasibility study?

Colonel WITHERSPOON. The draft reconnaissance report has been completed and is currently under review in my office. The report concluded that it would be economically feasible to raise Levee Unit L550 and the Mosquito Creek tiebacks for Levee Unit L624-627. However, the non-Federal sponsors for these structures do not support feasibility studies because the estimated construction costs exceed their financial ability.

BRUSH CREEK, KANSAS CITY, MISSOURI

Mr. BEVILL. You indicate in your testimony that the project cost estimate for the Brush Creek, Missouri project exceeds the maximum cost growth permitted by Section 902 of P.L. 99-662. How much has the project cost estimate increased? What caused the increase in estimated cost?

Colonel WITHERSPOON. The current project cost estimate of $26.2 million at 1 October 1989 price levels is an increase of $10.1 million from the authorized project cost estimate of $16.1 million at 1 October 1985 price levels. The changes include an increase of $2.2 million due to price level adjustments; an increase of 5.4 million due to design changes; a decrease of $0.6 million due to refinements in the estimate for unit prices and quantities; and an increase of $3.1 million due to reanalysis of requirements for engineering, design, supervision and administration.

MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (cont'd)

PROJECT	OBLIGATIONS ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
b. Channel Improvements, Inspections and Miscellaneous Maintenance.				
The program request of $679,000 provides for the annual maintenance on one local flood protection project and the inspection of completed works within the Division during the budget year.				
Iowa				
Missouri River, Kensiers Bend, NE to Sioux City, Iowa	41,000	48,000	52,000	Increased bank stabilization in FY90 and and FY91.
Inspection of Completed Works	522,000	540,000	627,000	O&M manual revisions in FY91.
Project Periodically Maintained	258,000	104,000	0	
Total -- Channel Improvements, Inspections and Miscellaneous Maintenance	821,000	692,000	679,000	
TOTAL - FLOOD CONTROL	24,017,000	25,901,000	24,172,000	

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects

The program request of $48,052,000 provides for the operation and maintenance of 8 multiple purpose projects.

The estimated amounts also include application of Special Recreation Use Fees for recreation areas and recreation at completed projects. Annual requirements are for the necessary operation and ordinary maintenance of project facilities; labor, supplies, materials, and parts required for the day-by-day functioning of the projects; periodic maintenance, repairs and replacements; cultural resource needs; and contract law enforcement.

PROJECT	OBLIGATIONS ACTUAL FY 1989 $	OBLIGATIONS ESTIMATED FY 1990 $	ESTIMATED FY 1991 $	EXPLANATION OF MAJOR CHANGES
Missouri				
Harry S. Truman Dam & Reservoir	5,823,000	7,002,000	8,031,000	Turbine repair Stages 1 and 2 in FY90. Turbine repair Stage 2 in FY91.
Stockton Lake	2,777,000	3,040,000	2,930,000	
Montana				
Fort Peck Lake	3,912,000	5,167,000	3,566,000	Construct maintenance facility and remove hazardous sand blasting material from spillway gates painting contract in FY90.

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General FY 1991

3. Multiple Purpose Power Projects (cont'd)

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
	$	$	$	
Nebraska				
Gavins Point Dam - Lewis and Clark Lake	4,714,000	3,657,000	5,144,000	Repair tailrace slab concrete, rewind generator stators, and replace battery chargers and power inverters in FY89. Repair spillway tainter gates, renovate maintenance building, replace station service circuit breakers, repair relief well drain pipes, and asbestos abatement of power house piping system in FY91.
North Dakota				
Garrison Dam- Lake Sakakawea	6,488,000	6,967,000	6,390,000	
South Dakota				
Big Bend Dam - Lake Sharpe	4,687,000	4,927,000	6,651,000	Rewind three of eight generators in FY91.

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MISSOURI RIVER DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects (cont'd)

PROJECT	ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
	$	$	$	
South Dakota (Cont'd)				
Fort Randall Dam-Lake Francis Case	6,941,000	6,660,000	7,334,000	Asbestos abatement intake structure in FY91.
Oahe Dam - Lake Oahe	7,859,000	7,299,000	8,006,000	
TOTAL - Multiple Purpose Projects	43,201,000	47,719,000	48,052,000	
GRAND TOTAL -- Missouri River Division	74,565,000	76,600,000	78,609,000	

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29 JAN 1990

Mr. BEVILL. The chair recognizes Mr. Myers.

Mr. MYERS. Colonel, they don't frock you anymore, do they? You have to wait for the Senate to act.

Colonel WITHERSPOON. Frocking is permitted, but we have to wait for the Senate.

Mr. MYERS. This is 1990, isn't it. We have had to wait for the Senate sometimes but not anymore. But you can't do anything about it. The Congressional district our colleague, Mrs. Smith, represents is within the Missouri River Division. Unfortunately, for the State of Nebraska and certainly for the Missouri River Division, this is her last time to serve in Congress. She is going to be retiring. I know you will miss her very much. We appreciate very much what she has done for you. We are going to miss her very much. At this time I will submit may questions for the record and will yield to Mrs. Smith.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN MYERS

THURMAN TO HAMBURG, IOWA

Mr. MYERS. Please update the Committee on any Corps' activity on the Thurman to Hamburg, Iowa project.

Colonel WITHERSPOON. The reconnaissance study is currently scheduled for completion in May 1990. This study is evaluating the flooding, sedimentation and interior drainage problems in the area, and will identify potential solutions. Potential solutions include the installation of pumps and construction of dams, levees, or sediment retention structures.

MISSOURI RIVER FISH AND WILDLIFE MITIGATION

Mr. MYERS. Please explain how the Corps intends to use the funds requested for environmental mitigation work along the Missouri River.

Colonel WITHERSPOON. The FY 1991 preconstruction, engineering and design completion funds will be used for real estate planning for initial land acquisition.

Mr. MYERS. What are the cost sharing arrangements on this activity.

Colonel WITHERSPOON. This mitigation project will be 100 percent Federally financed.

PERRY CREEK, IOWA

Mr. MYERS. What is the Corps capability on the Perry Creek, Iowa project?

Colonel WITHERSPOON. Subject to the usual qualifications, our capability on this study is $100,000, which is the same as the budget request.

Mr. BEVILL. I am still trying to convince Mrs. Smith to come back.

Mrs. SMITH. Let me say I am going to miss having the privilege of serving on this committee more than anything else in the Congress.

Mr. MYERS. Reconsider then.

Mrs. SMITH. You know out west we have an expression, there is a time to hold them, and a time to fold them.

Mr. MYERS. You know this sweet little lady has been in the back room dealing all this time.

DROUGHT

Mrs. SMITH. Colonel, I will be so happy when you are confirmed. We are so glad to have our good, long-standing friends here with you. First, I must ask about the drought because that is of greatest concern in our area.

I was listening carefully as you talked about all the problems you had maintaining navigation on the Missouri and how low those main stem lakes are.

Could you give me any more about your assessment of how the runoff will be, what the stream flows will be and what the situation will be particularly on the Platte River?

Colonel WITHERSPOON. Yes, ma'am. The drought is affecting other systems besides the main stem of the Missouri River.

Our indications on the flow in the upper North Platte are about 80 percent of average. The lower North Platte spring forecast is about 75 percent of average. The water currently in the North Platte reservoir system is approximately 75 percent of normal following last year's extremely dry conditions.

If the drought conditions persist, the stream flow could drop below 75 to 80 percent of average forecast. Even if we get normal spring runoff, some ownerships will probably run short of irrigation water this year. That is the bottom line.

Mrs. SMITH. What additional capability does the Missouri River Division need to carry out its responsibilities with respect to this sad drought situation?

Colonel WITHERSPOON. I think we are in good shape to do the mission that we have been assigned.

PLATTE RIVER STREAMBANK EROSION DEMONSTRATION PROJECT

Mrs. SMITH. Now let me turn to the Platte River Streambank Erosion project in Lincoln County, Nebraska. That is something we are very much interested in.

I want to ask you whether the previous appropriations for planning money will protect it from being deauthorized under Section 1001(a) of the 1986 Water Resources Development Act.

What guidance have you received so far on this issue with respect to that project?

Colonel WITHERSPOON. Last Tuesday Secretary Page testified on that, Mrs. Smith. His indication then was that they will protect the project. I know of no different situation from that testimony at this time.

Mrs. SMITH. When I asked him specifically if OMB agreed with that and if he had a letter from OMB. He said OMB did go along with that position in one case. But I did not understand him to say they had gone along with it on any blanket basis. Is that right?

Mr. BEVILL. That is a very important question that Mrs. Smith has asked.

I wish you would look into that and give us an answer in the record.

Colonel WITHERSPOON. Yes, sir, I will do that, Mr. Chairman.

[The information follows:]

STATUS OF DEAUTHORIZATION

The guidance we have received, as described in the public law, deauthorizes the project on 16 November 1991 unless funds are obligated for construction, including planning and designing of the project. Since preconstruction engineering and design funds have been obligated in Fiscal Year 1990, the project will not be subject to deauthorization.

Mr. BEVILL. Be sure to give Mrs. Smith a copy of the decision.

SIDNEY, NEBRASKA

Mrs. SMITH. Let's turn to the flood control project in the Sidney, Nebraska area. I am so grateful to you folks for approving the project. Those folks have been waiting for 15 years.

When will you be ready to move with construction on that project? Should the local people start now to invest their money in important preconstruction steps?

Colonel WITHERSPOON. There has been a recent development that makes it appear that the sponsor will be able to move a little quicker than we previously thought.

The project is progressing. Construction was approved by the Assistant Secretary in January. We expect to sign the local cooperation agreement this month. The city expects land acquisition will be completed for a construction start this fiscal year. That is a change from our previous projection of early next fiscal year.

PLATTE RIVER STREAMBANK EROSION DEMONSTRATION PROJECT

Mrs. SMITH. I appreciate that effort. Let me ask one more question. Going back to this demonstration project, what was recommended in the decision document on this demonstration project?

Colonel WITHERSPOON. The decision document identified sixty sites and recommended plans and specs be prepared on all sixty sites. Funds have been provided to the Omaha district to prepare the plans and specs which are scheduled to be completed in August of this year.

Mrs. SMITH. What is the estimated construction cost?

Colonel WITHERSPOON. The estimated cost is $4 million.

HARLAN COUNTY LAKE

Mrs. SMITH. Moving on to the Harlan County area, I know that your Kansas City District Office announced a survey with respect to the atrazine in the water in the Harlan County Lake. They say the water does comply with the EPA standards, but still it is heavily impregnated with atrazine.

Does this mean that you will be testing more frequently in the future?

Colonel WITHERSPOON. The bottom line to reduce the threat is to reduce the levels of contaminants or atrazine that flow into the lakes.

There are no problems to human health that we can discern. It is safe for swimming. But we will have to watch it closely and continue to monitor it.

INCREASE IN CAMPING FEES

Mrs. SMITH. I was told by Colonel Atkinson that you are going to increase your camping fees on Corps of Engineers' lakes to as much as $12.00 a night. Is it only in your area that the fees are being increased?

Colonel WITHERSPOON. I am not sure about all the other districts and divisions.

Mrs. SMITH. What is your estimate on how much the recreational use of these lakes will decline because of that?

Colonel WITHERSPOON. We don't anticipate that usage will decrease that much. We are getting in line with a lot of other districts and divisions.

COST SHARING

Mrs. SMITH. Just one more question. With regard to cost sharing, have any worthwhile projects been canceled because local sponsors have not been able to come up with their share of the money?

Colonel WITHERSPOON. That is a question that we are tracking closely and collecting data on. We are constructing a high percentage of projects since the 1986 requirement for local sponsor cost sharing in the study.

It requires a commitment from the local sponsors in the feasibility phase and some studies have not progressed. I can provide more information for the record.

[The information follows:]

PROJECTS TERMINATED DUE TO LACK OF COST SHARING SPONSOR

Four Section 14 projects and three Section 205 projects have been terminated because local sponsors were unable to cost share their portion of project costs. The following projects have been terminated:

Section 14 Projects

Project	Total Cost	Federal Cost	Non-Federal Cost
Little Blue River Sewage Lagoon, Steele City, NE	$58,100	$43,600	$14,500
Tributary of Mill Creek, Site 1 - County Road, Andrew County, MO	37,100	27,800	9,300
Agee Creek, Site 15 - County Bridge, Andrew County, MO	36,400	27,300	9,100
Tributary of Mill Creek, Site 19 - County Bridge Andrew County, MO	32,900	24,700	9,200

Section 205 Projects

Project	Total Cost	Federal Cost	Non-Federal Cost
Maple Creek East Fork, Howells, NE	$469,900	$351,900	$118,000
Nowood River, Manderson, WY	1,040,800	780,600	260,200
Cannonball River, Mott, ND	571,000	304,400	266,600

The most important of these projects is the Steele City Sewage Lagoons because of the environmental and sanitary problems that could result from failure of the lagoons. Steele City is a small town of 176 people. The Village Board explored alternative sources to fund their share of the costs including Jefferson County, State of Nebraska, and the Little Blue River Natural Resources District. They were unable to find a source of funding, and we were unable to provide any other suggestions to Steele City to finance the work.

Mrs. SMITH. I have more questions for the record.
Thank you.
[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSWOMAN SMITH

DROUGHT CONDITONS

Mrs. SMITH. Secretary Page and General Hatch discussed the drought situation in general terms in their testimony before this subcommittee on Tuesday. Colonel Witherspoon, can you flesh out their remarks with some specifics as to what you and your staff regard as the worst-case scenario?

Colonel WITHERSPOON. We regard the worst-case senario as one in which this year's runoff would be as low or lower than it was in 1988, which was 50 percent of normal. There is a 3 percent chance that the runoff will be that low. This would be the result of little additional snow accumulation in the mountains and little rainfall during the year.

Mrs. SMITH. What measures are being taken with respect to the drought?

Colonel WITHERSPOON. We are conserving water in the Missouri River main stem reservoir system through reduced releases from the reservoirs in support of all downstream functions. The reduced releases affect the power generation, navigation, water supply, power plant cooling, downstream recreation, and fish reproduction. The reduced releases will insure that the system will provide some benefits, but at reduced rates, if the drought should continue. The reduced releases this year are the result of providing only minimum service flows to navigation, shortening the season 5 weeks from the normal 8 months, and again reducing the non-navigation season flows.

Mrs. SMITH. Is the Missouri River Division ready to address the potential problems?

Colonel WITHERSPOON. We are addressing the problems that can be expected if the drought continues. We have outlined the operation of the reservoirs for a number of scenarios including above normal, normal, and below normal precipitation.

WOOD RIVER, GRAND ISLAND, NEBRASKA

Mrs. SMITH. What is the status of the flood control project on the Wood River at Grand Island?

Colonel WITHERSPOON. The feasibility study is nearly 50 percent complete. It is scheduled for completion in May 1991.

Mrs. SMITH. What is the total cost of this project?

Colonel WITHERSPOON. The proposed project is estimated to cost $4.8 million.

Mrs. SMITH. How much is the Federal share and the non-Federal share?

Colonel WITHERSPOON. Based on the estimate in the reconnaissance report, the non-Federal share would be approximately $1.8 million and the Federal share $3.0 million.

Mrs. SMITH. I understand you have a number of local sponsors on the Wood River project. Who are they, and what is the study costing them?

Colonel WITHERSPOON. There are four local sponsors sharing the cost of the feasibility study. They are: Central Platte Natural Resources District, City of Grand Island, Hall County, and Merrick County. Together they are contributing $186,000. The Federal Government is also providing $186,000.

PLATTE RIVER CUMULATIVE EFFECTS ASSESSMENT

Mrs. SMITH. What is the status of the Platte River Cumulative Effects Assessment?

Colonel WITHERSPOON. The Omaha District has completed all of the data collection and analysis and is currently finalizing the Environmental Assessment and Biological Assessment. These documents will be circulated for public information and comment this spring. The district will then develop a general permit to authorize certain types of bank stabilization that have been determined to have insignificant impacts.

Mrs. SMITH. When did this study begin?

Colonel WITHERSPOON. The Platte River Cumulative Effects Assessment began in FY 1987 with the collection of field data.

Mrs.SMITH. How much has it cost?

Colonel WITHERSPOON. Approximately $315,000 has been spent on this effort through January 1990.

Mrs. SMITH. What are the most important conclusions of the study?

Colonel WITHERSPOON. The most significant conclusion of the study is that bank protection structures that extend into the channel a distance of no more than 5 percent of the channel width would have no measurable impacts on the channel.

HARLAN COUNTY LAKE, NEBRASKA

Mrs. SMITH. Your Kansas City District recently issued a report titled "1988 Pesticide Survey of Kansas City District Lakes." With respect particularly to the Harlan County Lake, Nebraska, do present levels of weed-killing chemicals, such as atrazine and alachlor, pose a potential threat to aquatic life?

Colonel WITHERSPOON. Atrazine was the only pesticide found in Harlan County Lake water samples in 1988. The concentrations observed were at the threshold of the Environmental Protection Agency's criteria for protection of fresh water aquatic life. This means that the simpler organisms such as plankton, algae, and fish larvae could be affected. It is unknown at the present time whether or not these chemicals have concentrated in adult fish flesh. The Kansas City District will be obtaining fish flesh samples from several District lakes for analysis in 1990.

Mrs. SMITH. Is tourism in the area threatened also by the lake's contamination?

Colonel WITHERSPOON. No, ma'am. There is nothing from the information available that should adversely impact tourism in the area. The lake is safe for water contact recreation, and there is nothing to indicate that eating of fish from the lake should be restricted.

Mrs. SMITH. What measures are recommended to reduce the threat?

Colonel WITHERSPOON. The only way to totally prevent these pesticides from being carried into the lake would be to discontinue their use. Soil conservation practices would reduce the amount of run-off from agricultural lands and thus reduce the amount of contamination, but it would not be 100 percent effective.

CAMPING FEES IN KANSAS CITY DISTRICT'S LAKES

Mrs. SMITH. On another matter in your Kansas City District, your Colonel Atkinson recently informed me that camping fees will be increased to as much as $12 a night in recreation areas around the district's 13 Army Corps lakes. Is this the only district boosting these fees?

Colonel WITHERSPOON. The Omaha District also increased some fees for this year. I cannot speak for all Corps districts, but I understand that fees were increased in either 1989 or this year in Tulsa, Little Rock, St. Louis, and Rock Island Districts.

Mrs. SMITH. How much money was received in 1989 from camping fees in the Kansas City District?

Colonel WITHERSPOON. A total of $1,099,799 was collected in the Kansas City District for camping fees in 1989.

Mrs. SMITH. How much more money will be received as a result of the increase?

Colonel WITHERSPOON. We anticipate that approximately $150,000 in additional camping fees will be collected in 1990 as a result of the increase.

Mrs. SMITH. Will use of the recreation areas decline because of the increase? By how much?

Colonel WITHERSPOON. We do not expect use of Kansas City District's recreation areas to decline due to the fee increases because the fees in surrounding districts are comparable. Overall visitation is expected to remain the same.

MISSOURI RIVER FISH AND WILDLIFE MITIGATION

Mrs. SMITH. The President's budget provides $429,000 for planning for the Missouri River Fish and Wildlife Mitigation program. Our committee provided $300,000 for the current year. What work is being accomplished and scheduled with this money?

Colonel WITHERSPOON. Funds appropriated for FY 1990 and budgeted for FY 1991 will be used to initiate and complete preconstruction engineering and design.

Mrs. SMITH. Under what conditions could some or all of these funds be used for construction?

Colonel WITHERSPOON. The funds appropriated for FY 1990 and budgeted for FY 1991 are within the General Investigations appropriation and cannot be used for construction under any condition.

Mrs. SMITH. What is the total cost of this project?

Colonel WITHERSPOON. The total cost of the project is $54,700,000 at 1 October 1989 price levels.

Mrs. SMITH. How much is the Federal share and how much is the non-Federal share?

Colonel WITHERSPOON. This mitigation project will be 100 percent Federally financed.

Mrs. SMITH. Please provide a proposed schedule of funding and construction from FY 1990 to completion.

Colonel WITHERSPOON. Our funding requirements for FY 1990 and FY 1991 are $296,000 and $429,000, respectively, for preconstruction engineering and design. A construction schedule has not yet been developed, but we anticipate that it would take about 10 years to complete construction.

Mrs. SMITH. What major features will be constructed?

Colonel WITHERSPOON. The project includes land acquisition to help preserve the remaining terrestrial timbered tracts and wetland areas by preventing them from being drained for agricultural or commercial development. In addition, aquatic restoration projects will be constructed to help counteract the negative effects of habitat loss and channel bed degradation that has occurred along the Missouri River. These restoration projects will provide increased habitat for fish and wildlife; provide spawning, nesting, and rearing areas for fish, invertebrates, and waterfowl; and provide increased recreational opportunities for people. Preservation of aquatic areas will enable existing chutes, oxbows, and wetland areas to remain a viable component of the Missouri River ecosystem.

PAPILLION CREEK AND TRIBUTARIES LAKES, NEBRASKA

Mrs. SMITH. What is the current status of the Papillion Creek and Tributaries Lakes project?

Colonel WITHERSPOON. The Papillion Creek and Tributaries Lakes project includes four dams and improvement of the Big Papillion Creek channel. The four dams are completed. Recreation facilities are completed at Dam Sites 11 and 16 and will be completed at Site 20 this year. At Site 18, construction of recreation facilities will be continued in Fiscal Years 1990 and 1991. The first construction contract is scheduled for award this July on the Big Papillion Creek channel.

Mrs. SMITH. The President's budget proposes $2.9 million for construction. Does this include the Big Papillion Creek channel?

Colonel WITHERSPOON. Yes, ma'am. The FY 1991 budget request includes approximately $2.2 million to continue construction on the Big Papillion Creek channel.

Mrs. SMITH. What is your total capability for this entire project for FY 1991?

Colonel WITHERSPOON. Subject to the usual qualifications, our capability on this project is $2,905,000, which is the same as the budget request.

DEAUTHORIZATION ISSUE

Mr. BEVILL. The Chair recognizes Mr. Chapman.

Mr. CHAPMAN. I have no questions.

Mr. BEVILL. General Kelly, do you have something to add?

General KELLY. Mrs. Smith, you can put your mind at rest on the deauthorization issue. Secretary Page was absolutely right. In this case, we don't have to ask OMB approval.

It is very clear. The monies were expended from our GI account on both the study and the engineering accounts. Therefore it is not a deauthorization issue.

Mrs. SMITH. Thank you for sharing that with us.

Mr. BEVILL. You made her day.

CLOSING

Mr. BEVILL. Thank you very much, Colonel Witherspoon and each of you.

THURSDAY, FEBRUARY 8, 1990.

SOUTHWESTERN DIVISION

WITNESSES

BRIG. GEN. ROBERT C. LEE, DIVISION ENGINEER

CHARLES P. RINGENBERG, JR., P.E., CHIEF, PROGRAMS MANAGEMENT OFFICE

GEORGE T. CARLSON, PROGRAMS MANAGEMENT OFFICE

INTRODUCTION OF WITNESSES

Mr. BEVILL. Next we have the Southwestern Division, General Robert C. Lee.

We are pleased to have you with us General Lee. You may proceed as you wish.

General LEE. Thank you, sir.

As you commented, I am Brigadier General Robert C. Lee, Division Engineer of the Southwestern Division.

I have with me today on my left, Charlie Ringenberg, Chief of Programs, and on my right, George Carlson, also of the Programs Office.

With your permission, I will submit my status report on activities in the Southwestern Division for the record and briefly summarize that report.

Mr. BEVILL. That will be fine.

SOUTHWESTERN DIVISION

General LEE. The Southwestern Division embraces all or parts of eight states, an area that has 16 percent of the land and 10 percent of the population of the U.S. It covers areas in the Arkansas, White and Red River Basins, the Rio Grande Basin; the Texas Gulf; and a portion of the Colorado Basin in western New Mexico.

The terrain varies from the arid region of New Mexico, to the wooded areas of Arkansas, and from the plains of Kansas to the Gulf of Mexico. The Southwestern Division office is located in Dallas and has five district offices.

FISCAL YEAR 1991 PROGRAM

SWD's Fiscal Year 1991 budget is about $353 million: to include 35 activities under General Investigations; 22 projects in Construction; and 122 projects for continuing Operation and Maintenance.

GENERAL INVESTIGATIONS

The GI program is $11.2 million, which will provide for planning and engineering activities on high priority studies and projects in the Survey and Preconstruction Engineering and Design categories.

SURVEYS

For Survey studies $4 million is requested for 15 studies located throughout the division area.

Let me draw your attention to three of the surveys:

LAS CRUCES, EL PASO AND VICINITY, NEW MEXICO

The Las Cruces, New Mexico study is addressing flood control and other water-related problems. The budget request of $130,000 will be used to complete the reconnaissance studies and to initiate the feasibility phase.

UPPER TRINITY RIVER BASIN, TEXAS

The Upper Trinity Texas study is for general flood reduction and other water-related problems in the Dallas-Fort Worth metroplex. Major flooding occurred in May and June of 1989. This was only a 25-year frequency event; however, 18 lives were lost. All existing flood control projects in the basin prevented a total estimated $300 million in damages. $650,000 is requested to continue the feasibility phase of the study.

GULF INTRACOASTAL WATERWAY

ARANSAS NATIONAL WILDLIFE REFUGE, TEXAS

The Aransas National Wildlife Refuge Study along the Gulf Intracoastal Waterway is investigating erosion problems that threaten the refuge. The refuge provides a wintering habitat for the rare and endangered whooping crane. Last fall, concerned citizens volunteered their time and necessary materials to strengthen points along the bank where serious erosion threatened the wildlife refuge. $500,000 is requested to continue the feasibility studies.

PRECONSTRUCTION ENGINEERING AND DESIGN

The budget request also includes about $7.1 million for 20 Preconstruction Engineering and Design projects.

I will briefly discuss a few of the Preconstruction Engineering and Design projects.

HOUSTON-GALVESTON NAVIGATION CHANNELS, TEXAS

The Houston and Galveston Navigation Channels are located in the Galveston Bay System on the Texas Gulf Coast. The plan is to deepen the channel to 50 feet. $1.1 million is requested to continue the PED activities.

SHOAL CREEK, AUSTIN, TEXAS

$800,000 is requested for the Shoal Creek Flood Protection project at Austin, Texas. The plan consists of 7600 feet of channel improvements and construction of two tunnel diversions. Fiscal Year 1991 funds will be used to continue the General Design Memorandum.

CONSTRUCTION, GENERAL

The Fiscal Year 1991 request for Construction, General, is $130.4 million. These funds will be used to continue construction of 22 projects, which includes one deficiency correction project. I would like to highlight some of these:

ACEQUIAS IRRIGATION SYSTEM, NEW MEXICO

$2 million is included in the budget request for the Acequias Irrigation System in New Mexico. There are more than 1000 acequias, or community ditch systems, which have been in existence since the early Spanish colonization period. The requested funds will be used to award contracts to restore some of the river diversion structures and associated canals.

COOPER LAKE AND CHANNELS, TEXAS

At the Cooper Lake project we will continue construction of the embankment, spillway and outlet works with the $17.4 million requested. Overall project completion is scheduled for June 1994. The Fiscal Year 1990 Appropriations Act provided for an additional $5 million for recreation construction, which is acceptable to the State of Texas. We expect to reach an agreement with the State of Texas on the type of facilities to be constructed this month.

BOGGY CREEK, AUSTIN, TEXAS

$2.236 million is included in the budget request to complete the channel improvement project on Boggy Creek in Austin, Texas.

SAN ANTONIO CHANNEL IMPROVEMENT, TEXAS

For the San Antonio project, $7.1 million is requested to continue construction on the San Pedro Creek and San Antonio River tunnels. The interior of the San Pedro tunnel is shown on the slide.

CLEAR CREEK, TEXAS

The Clear Creek flood control project is located south of Houston. The $3.7 million requested will be used to continue channel rectification work.

FREEPORT HARBOR, TEXAS

1970 ACT

For the Freeport Harbor project, $11 million is requested. On the slide, construction of the new north jetty is underway and, in the center, the old existing north jetty is being removed.

SIMS BAYOU, HOUSTON, TEXAS

The Sims Bayou project in Houston is scheduled for construction initiation this year. The requested $12.6 million will provide for continuation of the channel improvements.

GREAT BEND, KANSAS

The Great Bend, Kansas project consists of a system of levee and channel construction to reduce flood damages. $9 million is re-

quested to continue construction on the local flood protection project.

LAKE WICHITA, HOLIDAY CREEK AT WICHITA FALLS, TEXAS

Included in the budget request is $11.2 million for the Lake Wichita, Holliday Creek, project at Wichita Falls, Texas. The requested funds will be used to continue construction of channel improvements.

MINGO CREEK, TULSA, OKLAHOMA

The Mingo Creek project is located at Tulsa, Oklahoma. The $13.6 million requested for Fiscal Year 1991, together with a cash contribution from the local sponsor, will be used to continue channel improvements and construction of additional detention sites.

BEAVER LAKE, ARKANSAS

WATER QUALITY ENHANCEMENT

$300,000 is requested for the Beaver Lake Water Quality Demonstration project in Arkansas. Individual land use, such as swine and poultry farms, within the drainage basin contribute to water quality degradation and impairment of water supply provided by Beaver Lake. The requested funds will be used to develop land use management practices to help preserve and enhance the water quality of the lake.

OPERATION AND MAINTENANCE

For Operation and Maintenance in SWD, $211.3 million is requested. The requested funds will be used on Locks and Dams of the McClellan-Kerr Arkansas River Navigation System; on channels and harbors along the Gulf Coast; for multiple purpose projects; and for flood control activities.

The Fiscal Year 1991 request includes $22.4 million for the continued operation and maintenance of the locks and dams on the McClellan-Kerr Navigation System. This system extends from the Mississippi River to the head of navigation near Tulsa, Oklahoma. Shown on the slide is the Wilbur D. Mills Dam.

MILITARY MOVEMENT ON THE WATERWAYS

As an item of interest, the locks and dams are not only serving commercial carriers but they are being utilized by the military. The 101st Airborne Division at Fort Campbell, Kentucky became the first active duty Army unit, and the 10th military unit in three years, to transport support equipment for training exercises on the waterways. The end-of-August round trip included two tow boats, 40 barges and 693 pieces of equipment. In the past three years, reserve and Army National Guard movements on the inland waterways have resulted in substantial savings in transportation costs.

DREDGING AND MAINTENANCE

Continuing with our operation and maintenance program, the request for dredging and maintenance of 12 projects along the Gulf Coast is $41.9 million. This will provide for the continued mainte-

nance of projects like the Houston Ship Channel and the Gulf Intracoastal Waterway.

MULTI-PURPOSE POWER

$70.9 million is requested for 18 multiple-purpose power projects in the Southwestern Division area like Town Bluff in Texas and Broken Bow Lake in Oklahoma, and Lake Texoma in Oklahoma and Texas. In addition to the production of electrical energy, these projects as a group also provide flood control, water supply and recreation benefits. Four of these projects, such as the Ozark-Jeta Taylor Lock and Dam in Arkansas and the Webbers Falls Lock and Dam in Oklahoma have locks that are an integral part of the McClellan-Kerr Navigation system.

FLOOD CONTROL

$76 million is requested for the continued operation and maintenance of 70 flood control projects, such as the Conchas Lake in New Mexico and the Council Grove Lake in Kansas and Birch Lake in Oklahoma.

MAJOR REHABILITATION PROJECTS

BEAVER LAKE, ARKANSAS

The previously mentioned categories included $15.1 million for two major rehabilitation projects. For the Beaver Lake project, $10.7 million is requested to continue construction.

WISTER LAKE, OKLAHOMA

In Fiscal Year 1991 major rehabilitation work will be completed at the Wister Lake project with the budget request of about $4.5 million.

RECREATION

Last year, Southwestern Division lakes attracted 145 million visitors, more than one-fourth of all visitors to Corps recreation areas nationwide. A number of industries benefit from the many large lakes developed by the Corps of Engineers from large manufacturers of bass boats, sailboats, fishing and ski equipment to small retail operations, such as bait shops and boat marinas.

CIVIL WORKS SUMMARY

In summary, the Southwestern Division's Fiscal Year 1991 request of $352.9 million, together with local sponsor cash contributions of $21.4 million, will provide a total of $374.3 million for continuation of water resource development activity by the Southwestern Division.

Mr. Chairman, this concludes my status report for the Southwestern Division. I will be happy to address any questions that you or Members of the Committee may have.

Mr. BEVILL. Thank you. We will insert your prepared statement and the justification material for the Southwestern Division in the record at this point, without objection.

[The information follows:]

STATUS REPORT

BRIGADIER GENERAL ROBERT C. LEE, DIVISION ENGINEER
SOUTHWESTERN DIVISION
8 February 1990

The Southwestern Division area embraces all or parts of eight states, which is an area that contains about 16 percent of the land and 10 percent of the population of the United States. The Division's Civil Works area is also defined by the following hydrologic areas: the portions of the Upper and Lower Colorado River Basins in western New Mexico, the entire United States portion of the Rio Grande Basin, the Texas Gulf Region (river basins mostly in Texas which drain into the Gulf), and the majority of the upper Arkansas, White and Red River Basins. The terrain varies from the eastern slopes of the Rocky Mountains in Colorado; to the arid regions of New Mexico; to the plush green areas of Arkansas; to the tidal areas of southeast Texas. The Division is headquartered in Dallas, Texas and includes five engineer districts, with headquarters located in Fort Worth and Galveston, Texas; Little Rock, Arkansas; Tulsa, Oklahoma; and Albuquerque, New Mexico.

FISCAL YEAR 1991 PROGRAM

The Fiscal Year 1991 program for studies and projects in this area is $352,868,000. Three percent of this amount will be used for General Investigations; 37 percent will be used for Construction; and 60 percent will be used for Operation and Maintenance activities at completed projects. The requested amount for Fiscal Year 1991 compares to the $343,072,000 in Federal funds that have been or will be allocated to the Southwestern Division for the current year.

GENERAL INVESTIGATIONS

The Fiscal Year 1991 Budget request for the General Investigations Appropriations is $11,168,000 of which 36 percent is allocated to Surveys and 64 percent to Preconstruction Engineering and Design activities. These Federal funds, together with scheduled cash contributions and work-in-kind of $2,208,000 from local sponsors, will provide for continued planning on high priority studies and Preconstruction Engineering and Design activities on high priority projects in the Southwestern Division area. This total program of $13,376,000 for Fiscal Year 1991 compares with the $9,375,000, including a local interest contribution of $1,194,000, which is scheduled for use in Fiscal Year 1990. The increase reflects Fiscal Year 1990 completions and increased effort in Fiscal Year 1991 on Preconstruction Engineering and Design projects.

FISCAL YEAR 1991 SURVEY PROGRAM

STUDY	FY 1991 FEDERAL REQUEST	FY 1991 LOCAL SPONSOR CONTRIBUTION
ARKANSAS		
Central Arkansas	$500,000	$500,000
KANSAS		
Arkansas River and Tributaries Great Bend, Kansas to Tulsa, OK	582,000	0
Caney River, KS & OK	210,000	210,000
NEW MEXICO		
Albuquerque Arroyos, Rio Grande and Tributaries	140,000 1/	20,000
Las Cruces, El Paso and Vicinity	130,000 1/	20,000
OKLAHOMA		
Crutcho Creek	100,000	100,000
Miami, Oklahoma and Vicinity	105,000	105,000
TEXAS		
Abilene, Brazos River Basin	42,000	42,000
GIWW, Sargent Beach	500,000	0
GIWW, Aransas National Wildlife Refuge	500,000	0
Matagorda County Shore	80,000 1/	20,000
Matagorda Ship Channel	276,000	276,000
Port Lavaca to Red Bluff	77,000 1/	20,000
San Bernard River Watershed	150,000 1/	110,000
Upper Trinity River Basin	650,000	650,000
TOTAL STUDIES	$4,042,000	$2,073,000

1/ Reflects funding request for completion of Reconnaissance Phase Studies and initiation of cost-shared Feasibility Phase Studies.

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SURVEY STUDIES

The Fiscal Year 1991 request of $4,042,000 in Federal funds for survey studies, together with local sponsor cash contributions of $2,073,000 on 12 studies, for a total program of $6,115,000, will provide for the study effort on 15 separate survey investigations located on major river basins throughout the Division area. These studies are located as follows: one in Arkansas; two in Kansas; two in New Mexico; two in Oklahoma; and eight in Texas, as shown on the preceding table.

The requested funds, together with non-Federal contributions, will provide for: the completion of five reconnaissance studies; the initiation of five feasibility studies; the completion of three studies; the continuation of two studies at full Federal expense; and the continuation of five feasibility studies in partnership with local sponsors. This total program of $6,115,000 compares with a total program of $4,261,000 in Fiscal Year 1990 (Federal funds of $3,216,000 - plus local sponsor contributions of $1,045,000).

COMPLETION OF RECONNAISSANCE STUDIES

The Fiscal Year 1991 request includes $577,000 in Federal funds, to be matched with $190,000 of non-Federal funds, for the completion of reconnaissance studies and initiation of feasibility studies on five studies. These studies are located as follows: two in New Mexico and three in Texas.

ALBUQUERQUE ARROYOS, RIO GRANDE AND TRIBUTARIES, NEW MEXICO

The Fiscal Year 1991 request includes $140,000, of which $120,000 will be used to complete reconnaissance studies, at full federal expense. The reconnaissance studies will investigate flood control and other water-related problems and opportunities in the Albuquerque, New Mexico area. Flooding in the summer of 1988 raised concerns that potentially severe flooding problems exist, particularly in the northeast and southwest areas of the city. Reconnaissance studies are scheduled for completion in March 1991. The Feasibility Cost Sharing Agreement is expected to be executed by June 1991 and $20,000 is requested to initiate the feasibility study.

LAS CRUCES, NEW MEXICO, EL PAŞO AND VICINITY

The Fiscal Year 1991 request includes $130,000, of which $110,000 will be used to complete a reconnaissance phase study, at full Federal expense. The study will investigate flood control and other water-related problems and opportunities in Las Cruces, New Mexico. The remaining $20,000 will be used to initiate cost-shared feasibility studies. Flooding and erosion problems have become more severe as the city and adjacent areas of the county rapidly develop. Reconnaissance studies are scheduled for completion in January 1991. The execution of a Feasibility Cost

Sharing Agreement is scheduled for July 1991.

MATAGORDA COUNTY SHORE, TEXAS

The Fiscal Year 1991 request includes $80,000, $60,000 to complete the reconnaissance studies and execute a Feasibility Cost Sharing Agreement and $20,000 to initiate the feasibility study on the entire 65 mile length of the Matagorda County Gulf shoreline. The highest shoreline erosion rates in Texas occur in Matagorda County. More than 40 homes, valued at over $5,000,000 have been destroyed by erosion. If the erosion continues unchecked, more than 100 additional homes will be lost and the Gulf Intracoastal Waterway will be endangered. The reconnaissance study will evaluate potential solutions to the problem, both structural and nonstructural. The potential local sponsor is Matagorda County. The sponsor understands the requirements for the feasibility phase of the study and has indicated a willingness to meet these requirements if the results of the reconnaissance studies are satisfactory. The reconnaissance studies are scheduled for completion in March 1991. The feasibility study is scheduled for completion in September 1994.

PORT LAVACA TO RED BLUFF, TEXAS

The Fiscal Year 1991 request includes $77,000, $57,000 to complete the reconnaissance studies and execute a Feasibility Cost Sharing Agreement, and $20,000 to initiate the feasibility study. The reconnaissance studies will determine the need and advisability of modifying the existing Channel to Red Bluff in the interest of navigation. The channel could be modified from 6 feet deep by 100 feet wide to match the dimensions of the Gulf Intracoastal Waterway, which is 12 feet deep by 125 feet wide. The reconnaissance studies are scheduled to be completed in June 1991. The feasibility study is scheduled for completion in September 1994.

SAN BERNARD RIVER WATERSHED, TEXAS

The Fiscal Year 1991 request includes $150,000, $40,000 to complete the reconnaissance phase study and the remaining $110,000 to initiate the feasibility study of the San Bernard River Watershed which provides drainage to portions of Austin, Colorado, Fort Bend, Brazoria and Wharton Counties, southwest of Houston, Texas. The reconnaissance studies will address the feasibility of urban and rural flood damage reductions and will focus on developed areas affected by tidal and riverine flooding. Major flooding has occurred many times, the latest in 1985. Damages exceeded $1,760,000 for this flood. The Commissioners Courts of Wharton and Fort Bend Counties have expressed an interest in local sponsorship for the feasibility study and possible flood damage reduction projects. The reconnaissance studies are currently scheduled for completion in April 1991. The feasibility study is scheduled for completion in December 1993.

FEASIBILITY STUDY COMPLETIONS

The Fiscal Year 1991 request includes $900,000 which, together with $318,000 in local sponsor contributions, will be used for the completion of three studies. These studies are: Arkansas River, Great Bend, Kansas, to Tulsa, Oklahoma; Abilene, Brazos River Basin, Texas; and Matagorda Ship Channel, Texas.

ARKANSAS RIVER AND TRIBUTARIES GREAT BEND, KANSAS, TO TULSA, OKLAHOMA

Requested for Fiscal Year 1991 is $582,000 to complete the feasibility studies for the multipurpose reservoir interim of the Arkansas River and Tributaries, Great Bend, Kansas, to Tulsa, Oklahoma study. This study is currently looking at the Norwich Lake site, one of the multipurpose reservoirs being studied in central Kansas. The Fiscal Year 1991 funds will be used to complete studies of Norwich Lake and the feasibility interim study.

ABILENE, BRAZOS RIVER BASIN, TEXAS

The Fiscal Year 1991 request for $42,000 will be used to complete the feasibility study in April 1991. A Feasibility Cost Sharing Agreement with the city of Abilene as local sponsor was executed on February 15, 1989. The sponsor agreed to contribute 50 percent of the cost of the feasibility studies. These studies are now focused on a plan of detention on Elm Creek and diversion to Little Elm Creek as the most feasible plan.

MATAGORDA SHIP CHANNEL, TEXAS

The Fiscal Year 1991 request includes $276,000 to complete the feasibility study of modifying the Matagorda Ship Channel in the interest of commercial navigation. Additional water depths are needed to accommodate the existing project users, as well as a potential user contemplating a major plant expansion. The use of larger vessels will decrease shipping cost. The reconnaissance studies were completed in November 1989. The Calhoun County Navigation District has expressed a willingness to act as local sponsor for the feasibility study and enlargement of the ship channel. A cost sharing agreement is expected to be executed in March 1990.

The current estimated cost ($980,000) and the scheduled completion date (September 1991) for the feasibility study are tentative and are expected to change. Review of the reconnaissance report and other data for the potential project indicates that both hydrodynamic and ship simulator studies and expanded cultural investigations may be required. Should this requirement become a reality, the cost of the feasibility study is expected to increase by as much as $2.5 million and study completion will be delayed by about two years.

CONTINUING FEDERALLY FUNDED STUDIES

Included in the request for Fiscal Year 1991 is $1,000,000 for the continuation of study effort, at full Federal expense, on two studies that were funded last year. These studies are: Gulf Intracoastal Waterway, Aransas National Wildlife Refuge and Gulf Intracoastal Waterway, Sargent Beach, Texas.

GULF INTRACOASTAL WATERWAY, ARANSAS NATIONAL WILDLIFE REFUGE, TEXAS

The Fiscal Year 1991 request includes $500,000 to continue the feasibility study of the Gulf Intracoastal Waterway in the Aransas National Wildlife Refuge. The study area is approximately 43 miles southeast of Victoria, Texas in Aransas and Calhoun Counties. The study will investigate erosion problems along a 13.25 mile reach of the waterway within the boundary of the Aransas National Wildlife Refuge, as well as an additional 15 miles of channel eastward of the refuge but within the designated critical habitat of the whooping crane. The erosion is caused primarily by combinations of traffic on the waterway and wave action. The feasibility costs of $1,500,000 are all federal. The feasibility study is scheduled to be completed in September 1993.

Last fall, concerned citizens volunteered their time, energy, all necessary materials, and some of the equipment to strengthen points along the bank where serious erosion threatened the Wildlife Refuge. This effort demonstrates the deep concern by many of the local population and was a tangible effort to help protect the whooping crane habitat.

GULF INTRACOASTAL WATERWAY, SARGENT BEACH, TEXAS

The Fiscal Year 1991 request includes $500,000 to continue the feasibility study of a reach of the Gulf Intracoastal Waterway that parallels the Gulf of Mexico shoreline and is separated from the Gulf by a land barrier varying in width from about 600 to 900 feet in the vicinity of Sargent, Beach. This stretch of waterway is located at Sargent, Texas, in Matagorda County. If the extreme rate of erosion (approximately 30 feet per year) continues, the Gulf will breach the Gulf Intracoastal Waterway. The study is to find ways to eliminate this potential hazard to navigation. The feasibility costs of $1,000,000 are all federal. The feasibility study is scheduled for completion in September 1992.

CONTINUATION OF PARTNERSHIP STUDIES

The Fiscal Year 1991 request includes $1,565,000 for continuation of feasibility studies on five surveys. These surveys are being pursued on a 50-50 cost sharing basis with local sponsors in accordance with Public Law 99-662, the Water Resources Development Act of 1986. The requested funds, together with local sponsor contributions of $1,565,000 will provide for a Fiscal Year

1991 program of $3,130,000 for these studies.

CENTRAL ARKANSAS, ARKANSAS

The Fiscal Year 1991 request includes $500,000 to continue the feasibility phase of the Central Arkansas study. The study area includes Pulaski, Faulkner, Saline, White, and Lonoke Counties. The study will address flood control and other water-related problems and needs of portions of the White, Arkansas, and Ouachita River basins. It is estimated that the area experiences average annual flood damages in excess of $2,000,000 with the most recent flood occurring in November 1988. The reconnaissance studies are scheduled to be completed in April 1990. The feasibility study is scheduled for completion in September 1992.

CANEY RIVER, KANSAS AND OKLAHOMA

The reconnaissance studies were completed in February 1989. A cost sharing agreement is being negotiated with the involved three counties (Tulsa, Washington, and Rogers) and the two cities (Dewey and Bartlesville). The Fiscal Year 1991 request includes $210,000 to continue the feasibility study which is scheduled for completion in May 1993. This delay in completion is due to the additional time required to define the problem areas and negotiate the feasibility cost sharing agreement.

CRUTCHO CREEK, OKLAHOMA

The Crutcho Creek study is addressing the flood control problems in a portion of the Oklahoma City metroplex that includes Midwest City, Del City, part of Oklahoma City, as well as Tinker Air Force Base. The reconnaissance studies are scheduled for completion in March 1990. Feasibility studies will begin after execution of a feasibility cost sharing agreement with the cities involved. The Fiscal Year 1991 request is $100,000 which will be used to continue the feasibility study. The feasibility study is scheduled for completion in September 1993.

MIAMI, OKLAHOMA AND VICINITY

A reconnaissance report was completed for the Miami, Oklahoma study which showed several levee alternatives would provide flood protection to the City from Tar Creek and the Neosho River. Negotiations are nearing completion with the city of Miami for a feasibility cost sharing agreement. Fiscal Year 1991 funds of $105,000 will be used to continue the feasibility study. The feasibility study is now scheduled for completion in April 1993 instead of July 1992. This delay is caused by the length of time needed to complete negotiations of the feasibility cost sharing agreement.

UPPER TRINITY RIVER BASIN, TEXAS

The Fiscal Year 1991 request for $650,000 will be used to continue the feasibility phase study. The study is supported by nine communities and three counties within the Dallas-Fort Worth area and the Tarrant County Water Control and Improvement District No. 1. Additional support has been expressed by the Trinity River Authority and the Trinity River Improvement Association. Local sponsors approved an Interlocal Agreement on 16 November 1989 to allow the North Central Texas, Council of Governments to be the local sponsor for the feasibility study. The feasibility study is scheduled for completion in September 1993.

STUDY FUNDED IN FISCAL YEAR 1990

The following study was funded in Fiscal Year 1990, however no funds have been requested for Fiscal Year 1991.

SANTA FE RIVER, SANTA FE, NEW MEXICO

The Santa Fe River in Santa Fe, New Mexico, has experienced significant channel degradation and erosion in the last 20 years. This erosion now threatens public and private property and has created a safety hazard for school children as they proceed to and from nearby schools. In the Conference Report which accompanied the Energy and Water Development Appropriations Act for 1990, Congress directed that $300,000 of Section 14 (Construction, General Appropriation) funds be used to design an appropriate erosion control project. The intent of both the House and Senate in adding this appropriation was clarified in colloquies in the House on 16 November 1989 and in the Senate on 17 November 1989. The intent expressed in the colloquies was clearly to initiate and complete engineering and design activities including the preparation of plans and specifications with General Investigation funds.

The Corps has no authority, however, to initiate detail design activities without prior consideration as to the environmental and economic feasibility of the project. Consequently, for Fiscal Year 1990, $50,000 of General Investigation funds has been allotted to initiate and complete a reconnaissance report.

PRECONSTRUCTION ENGINEERING AND DESIGN

The request for Fiscal Year 1991 includes $7,126,000 for twenty projects. Two projects will be initiated, four projects completed and fourteen projects continued. The cost of this engineering and design effort will be cost-shared with local sponsors in accordance with the cost-sharing and financing concepts reflected in Public Law 99-662, the Water Resources Development Act of 1986. These projects are located as follows: one project in Colorado; three projects in Kansas; two projects in New Mexico; one in Oklahoma; and thirteen projects in Texas. The projects and amounts requested for Fiscal Year 1991 are listed in the following table.

The funds requested for Fiscal Year 1991 compares with $4,428,000 allocated for this category for Fiscal Year 1990. This change primarily reflects an increase in the Fiscal Year requirements for Preconstruction Engineering and Design activities on two projects (Roswell, New Mexico and Abilene, Texas) developed in cost shared feasibility studies, and increased funding for the nine projects initiated with Fiscal Year 1990 funds.

CONTINUING PED PROJECTS

The Fiscal Year 1991 request includes $6,296,000 for the continuation of Preconstruction Engineering and Design activities on sixteen projects. These projects are located as follows: one in Colorado (Alamosa); three in Kansas (Arkansas City, Upper Little Arkansas River Watershed, and Winfield); one in New Mexico (Roswell, Pecos River); and eleven in Texas (Abilene, Brazos River Basin; Beals Creek, Big Spring; Brays Bayou, Houston; Falfurrias; Five Mile Creek, Dallas; Greens Bayou, Houston; Houston-Galveston Navigation Channels; Lower Rio Grande, Arroyo Colorado; Lower Rio Grande, South Main Channel; McGrath Creek, Wichita Falls; and Shoal Creek, Austin).

FISCAL YEAR 1991 PRECONSTRUCTION ENGINEERING AND DESIGN PROGRAM (PED)

PROJECT	FY 1991 REQUESTED AMOUNT
COLORADO	
Alamosa	$240,000
KANSAS	
Arkansas City	300,000
Upper Little Arkansas River Watershed	210,000
Winfield	150,000
NEW MEXICO	
Rio Grande Floodway, San Acacia to Bosque del Apache Unit	263,000
Roswell, Pecos River	460,000
OKLAHOMA	
Fry Creeks, Bixby	168,000
TEXAS	
Abilene, Brazos River Basin	258,000
Beals Creek, Big Spring	145,000
Brays Bayou, Houston	900,000
Brazos Island Harbor (42-foot project)	215,000
Channel to Victoria	184,000
Falfurrias	200,000
Five Mile Creek, Dallas 1/	135,000
Greens Bayou, Houston	723,000
Houston-Galveston Navigation Channels	1,100,000
Lower Rio Grande Basin, Arroyo Colorado	300,000
Lower Rio Grande Basin, South Main Channel	75,000
McGrath Creek, Wichita Falls	300,000
Shoal Creek, Austin	800,000
TOTAL	$7,126,000

1/ In addition, the Local Sponsor will contribute $135,000.

ALAMOSA, COLORADO

Funds in the amount of $240,000 are requested for Fiscal Year 1991 to continue Preconstruction Engineering and Design work on the Alamosa, Colorado, project. The recommended project, estimated to cost $8 million, includes the construction of a levee system along the Rio Grande which will provide 100-year protection and recreational facilities to the community of Alamosa and the unincorporated area of East Alamosa. The benefit-cost ratio is 1.4 to 1 at 8-7/8 percent interest rate. The project is not yet authorized for construction. The city of Alamosa, the local sponsor, has constructed a portion of the recommended project. It has received tentative approval for credit in the amount of $988,000 from the Assistant Secretary of the Army (Civil Works) under Section 104 of the Water Resources Development Act of 1986. Completion of Preconstruction Engineering and Design is now scheduled for March 1993 instead of July 1992. The delay in completion is a result of the reduction in Fiscal Year 1990 funding.

ARKANSAS CITY, KANSAS

For Fiscal Year 1991, $300,000 is requested to continue the preparation of the general design memorandum. The project would consist of raising and extending 8 miles of existing levee and modifying about 1.9 miles of the Walnut River channel. Preconstruction Engineering and Design is scheduled for completion in September 1992.

UPPER LITTLE ARKANSAS RIVER WATERSHED, KANSAS

The Upper Little Arkansas River Watershed Project which is located in McPherson, Rice, and Reno Counties near Wichita, Kansas, consists of a system of 18 small dams which will provide flood damage reduction and sediment storage. Funds of $210,000 requested for Fiscal Year 1991 will be used to continue Preconstruction Engineering and Design. These studies are now scheduled for completion in April 1992 instead of September 1991. The seven month delay and the increase in planning costs were caused by an increased scope of required geotechnical explorations at all of the dam sites prior to initiation of construction.

WINFIELD, KANSAS

Funds of $150,000 are requested in Fiscal Year 1991 to continue Preconstruction Engineering and Design for the Winfield, Kansas project. The project includes extending and raising the existing levee system to provide a high level of protection to the city of Winfield. Preconstruction Engineering and Design is now scheduled for completion in May 1994 instead of September 1993. The eight month delay was caused by the need for further review of the general reevaluation report.

ROSWELL, PECOS RIVER, NEW MEXICO

Fiscal Year 1991 funds in the amount of $460,000 are requested for Preconstruction Engineering and Design work on the Roswell, Pecos River, New Mexico, project. The plan of improvement, which will be developed during the Preconstruction Engineering and Design Phase, will be the plan recommended in the Feasibility Study scheduled for completion in September 1990. This project is not yet authorized for construction. Completion of all Preconstruction Engineering and Design work is scheduled for August 1993.

ABILENE, BRAZOS RIVER BASIN, TEXAS

The Fiscal Year 1991 request includes $258,000 for Preconstruction Engineering and Design effort on the Abilene, Texas project. The plan of improvement, for which detailed engineering and design studies will be made, is to be the plan recommended in the feasibility report. This report is scheduled for completion in April 1991. The project is not yet authorized for construction. Preconstruction Engineering and Design is scheduled for completion in November 1996.

BEALS CREEK, BIG SPRING, TEXAS

The Fiscal Year 1991 request for $145,000 will be used to complete a General Design Memorandum and initiate preparation of plans and specifications. A Reevaluation Report was completed in January 1990 indicating that a 10-year frequency diversion channel is the most feasible plan and the plan preferred by the local sponsor. This plan is estimated to cost $4.2 million of which about $1 million would be the local sponsor's share of the project cost. Preconstruction Engineering and Design is scheduled for completion by March 1992.

BRAYS BAYOU, HOUSTON, TEXAS

The Fiscal Year 1991 request includes $900,000 to continue Preconstruction Engineering and Design studies on the Brays Bayou project in Houston, Texas. The project, estimated to cost $330 million, would reduce the existing 100-year frequency floodplain along Brays Bayou by 97 percent. On an average annual basis, stream flooding could cause nearly $46 million in damage to existing properties. The benefit-cost ratio is 3.1 to 1 at 8 5/8 percent interest rate. The project is not yet authorized for construction. Brays Bayou is one feature of a comprehensive flood control plan for Buffalo Bayou Watershed. The project will require cost-sharing. Harris County Flood Control District, the potential local sponsor, has an interest in reducing flooding in the Buffalo Bayou Watershed and has helped in the development of the plans. Preconstruction Engineering and Design is now scheduled for completion in March 1994, a six month delay from September 1993 reported last year. The delay is a result of the reduction in initial year funding.

FALFURRIAS, TEXAS

The Fiscal Year 1991 request includes $200,000 to continue Preconstruction Engineering and Design on the Falfurrias, Texas, project. The project was authorized by Public Law 100-676, the Water Resources Development Act of 1988. The project, estimated to cost $37.8 million, consists principally of diversion features and flowage easements. The benefit-cost ratio is 3.0 to 1 at 8 5/8 percent interest rate. Cost-sharing will be required and Brooks County is the potential local sponsor. The General Design Memorandum is scheduled to be completed in March 1992. Preconstruction Engineering and Design is currently scheduled for completion in September 1992 a six month delay from March 1992 last reported. The completion delay is due to more detailed analysis of engineering requirements.

FIVE MILE CREEK, DALLAS, TEXAS

The Fiscal Year 1991 request for $135,000 will be used to complete the feasibility study. The project was authorized only for planning, engineering and design by the Water Resources Development Act of 1986. The local sponsor is required to pay 50 percent of the costs associated with feasibility phase studies. Subsequent engineering and design costs will be cost shared in the same proportion as required for the construction of the selected plan of improvement. The city of Dallas, in a letter dated June 12, 1989, has expressed interest in being the local sponsor. Negotiations with Dallas on a Feasibility Cost Sharing Agreement have been started. Preconstruction Engineering and Design is scheduled for completion in February 1995.

GREENS BAYOU, HOUSTON, TEXAS

The Fiscal Year 1991 request includes $723,000 to continue Preconstruction Engineering and Design studies on the Greens Bayou project in Houston, Texas. On an average annual basis, stream flooding could cause about $17.8 million in damage to existing properties. The project, estimated to cost $149 million, will require cost-sharing. The benefit-cost ratio is 2.7 to 1 at 8 5/8 percent interest rate. The project is not yet authorized for construction. Harris County Flood Control District, the potential local sponsor, has an interest in reducing flooding in the Buffalo Bayou Watershed and has helped in the development of the plan. Preconstruction Engineering and Design is now scheduled for completion in December 1993. This three month delay from September 1993 reported last year is a result of the reduction in initial year funding.

HOUSTON-GALVESTON NAVIGATION CHANNELS, TEXAS

The Fiscal Year 1991 request includes $1,100,000 to continue Preconstruction Engineering and Design activities on the proposed enlargement of the Houston-Galveston Ship Channels. The project is not yet authorized. The proposed project for the Houston

Channel, is 50 feet deep by 600 feet wide, and for the Galveston Channel is 50 feet deep by 450 feet wide. Both channels will result in transportation savings from using larger and more efficient vessels, reduction in vessel casualties and reduction of vessel delays. In addition, the Galveston Bay Entrance Channel will be deepened and extended at an estimated cost of $104 million. The total project cost, including deepening and extending the Galveston Bay Entrance Channel, is currently estimated at $633 million. The benefit-cost ratio is 1.9 to 1 at 8 5/8 percent interest rate. The local sponsor for the Houston Channel is the Port of Houston and for the Galveston Channel is Galveston Wharves. Preconstruction Engineering and Design is scheduled for completion in September 1994.

MCGRATH CREEK, WICHITA FALLS, TEXAS

Funds in the amount of $300,000 are requested for Fiscal Year 1991 to continue Preconstruction Engineering and Design work on the McGrath Creek Project in Wichita Falls, Texas. The project was authorized by Public Law 100-676, the Water Resources Development Act of 1988. It includes a new spillway at the existing Sikes Lake and a 0.7 mile rectangular concrete-lined channel along McGrath Creek between Sikes Lake and the confluence with Holliday Creek. The plan provides protection against the 100-year frequency flood along McGrath Creek downstream of Sikes Lake. The project is estimated to cost $10.9 million. The benefit-cost ratio is 1.5 to 1 at 8-7/8 percent interest. The city of Wichita Falls, Texas, is the potential local sponsor. Preconstruction Engineering and Design is scheduled for completion in September 1992.

SHOAL CREEK, AUSTIN, TEXAS

The project is not yet authorized for construction. A draft Feasibility Report, circulated for public and agency review in June 1987, received numerous comments from various sources. Due to environmental concerns, revisions were made to the recommended plan. A revised draft Feasibility Report was submitted on October 31, 1989 to the Division Engineer for review and approval. This revised report will be recirculated for public and other agency reviews, and another public meeting will be held. The Fiscal Year 1991 request for $800,000 will be used to continue work on the Design Memorandum. Completion of Preconstruction Engineering and Design is scheduled for September 1995.

PRECONSTRUCTION ENGINEERING AND DESIGN PROJECT COMPLETIONS

Included in the request for Fiscal Year 1991 is $830,000 for the completion of Preconstruction Engineering and Design on four projects; two for flood control (San Acacia to Bosque del Apache and Fry Creeks, Bixby, Oklahoma) and two for navigation (Brazos Island Harbor, 42-foot project and Channel to Victoria).

**RIO GRANDE FLOODWAY,
SAN ACACIA TO BOSQUE DEL APACHE UNIT, NEW MEXICO**

Funds in the amount of $263,000 are requested for Fiscal Year 1991 to complete Preconstruction Engineering and Design on the San Acacia to Bosque Del Apache Unit of the Rio Grande Floodway Project. The project was authorized for construction by the Flood Control Acts of 1948 and 1950. The project includes the complete removal and replacement of the existing spoil bank levee used to separate the Rio Grande low-flow conveyance channel from the cleared floodway, from San Acacia to the headwaters of Elephant Butte Reservoir, a distance of about 58 miles. The project is estimated to cost $39.6 million. The average annual benefits amount to $12.5 million, all for flood damage prevention. The benefit-cost ratio is 3.7 to 1 at 8-7/8 percent. Preconstruction Engineering and Design is currently scheduled for completion in September 1991 instead of June 1991. The delay in scheduled completion by three months reflects the need for additional time to resolve the issue of appropriate cost sharing of a project which will primarily benefit a Federal facility.

FRY CREEKS, BIXBY, OKLAHOMA

Funds of $168,000 are requested in Fiscal Year 1991 for Preconstruction Engineering and Design efforts. The project was authorized for construction by the Water Resources Development Act of 1986. The plan of improvement, estimated to cost $17.3 million, consists of channelization and diversion to provide 100-year flood protection to about 400 residents, 22 businesses, and numerous public and private facilities. Completion of Preconstruction Engineering and Design, at a cost of $1,400,000, is currently scheduled for January 1991; however, a delay in completion from January 1991 is being considered along with a cost increase of about $150,000 for conducting additional design studies requested by the local sponsor.

BRAZOS ISLAND HARBOR (42-FOOT PROJECT), TEXAS

The Fiscal Year 1991 request includes $215,000 to complete Preconstruction Engineering and Design on the Brazos Island Harbor, 42-foot, project. This project was authorized by the Water Resources Development Act of 1986. The authorization provides for enlargement of the entrance channel from deep water in the Gulf of Mexico to the Laguna Madre to a depth of 44 feet and a width of 400 feet; enlargement of the Turning Basin extension to a point 800 feet beyond the grain elevator to a depth of 42 feet at widths varying from 325 to 400 feet; removal of Brownsville Navigation District Wharves 5,6, and 9 to permit widening of the adjacent portion of the Turning Basin to 1200 feet at a depth of 36 feet. Minimum recreation facilities are also included in the project. The project construction cost is estimated at $38.8 million ($15.6 million local costs). The Local Sponsor for the project is the Brownsville Navigation District. They have indicated support of cost-sharing in accordance with the Water Resources Development Act of 1986.

Preconstruction Engineering and Design studies will now complete in June of 1991. This delay in completion of nine months from the date last reported, together with the increase in the Preconstruction Engineering and Design estimate of $750,000, results from a need to perform ship simulator studies and archeological investigations prior to requesting funds for initiation of construction.

CHANNEL TO VICTORIA, TEXAS

Funds in the amount of $184,000 are requested for Fiscal Year 1991 to complete Preconstruction Engineering and Design work on the Channel to Victoria project. The project was authorized by Public Law 100-676, the Water Resources Development Act of 1988, and is estimated to cost $26.9 million. The project consists of enlarging the existing channel from the Gulf Intracoastal Waterway to Victoria from a depth of 9 feet and width of 100 feet to a depth of 12 feet and a width of 125 feet, the same dimensions as the Gulf Intracoastal Waterway, with disposal of the dredged materials in upland areas. The benefit-cost ratio is 1.2 to 1 at 8 3/8 percent interest rate. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the Federal share of the first cost is estimated at $16.4 million. Potential sponsors are Victoria County Navigation District and the Westside Calhoun County Navigation District. Preconstruction Engineering and Design is scheduled to be completed in March 1991.

OTHER PROJECTS FUNDED FOR PRECONSTRUCTION ENGINEERING AND DESIGN IN FISCAL YEAR 1990

The following three projects received funds in Fiscal Year 1990. No funds are requested for Fiscal Year 1991.

BIG AND LITTLE SALLISAW CREEKS, OKLAHOMA

The proposed navigation project is located in a north arm of the existing Robert S. Kerr Lock and Dam in Sequoyah County, Oklahoma. The authorized plan consists of: a 9 foot deep, 100 foot wide navigation channel extending about 5 miles from the existing sailing line; a 400 by 500 foot turning basin to be located 3 miles southwest of Sallisaw, Oklahoma; a dike on the south shore about 4,900 feet in length; and a 6,000 foot dike with wetlands on the northwest shore for fish and wildlife mitigation. The estimated cost of the project is $7.2 million (1 October 1989 prices) of which the local sponsors share would be $6.2 million.

The funds provided for Fiscal Year 1990 are sufficient for and are being used to complete Preconstruction Engineering and Design. Additional Funds are not required in Fiscal Year 1991 for these activities as Preconstruction Engineering and Design is scheduled for completion in June 1990.

RED RIVER WATERWAY, LA, AR, OK, TX (INDEX, AR TO DENISON DAM) BANK STABILIZATION

The authorized plan of improvement is located along the Red River in Arkansas, Oklahoma and Texas from the head of levees in the vicinity of Index, Arkansas, which is North of Texarkana, to Denison Dam. The plan of improvement extends along about 200 miles of river and provides for channel realignment and bank stabilization. The project has a total estimated cost of $325 million (1 October 1989 price levels). In accordance with the cost sharing requirements of the Water Resources Development Act of 1986, the local sponsor's share of these costs would be about $76 million.

Preconstruction Engineering and Design funds of $200,000 were added in the Fiscal Year 1990 Energy and Water Development Appropriations Act. These funds have not been allocated, however because the project would provide only bank and channel stabilization benefits which are not considered to be a high priority project output. In addition, because of this lack of high priority benefits, funds are not requested for Fiscal Year 1991.

CYPRESS CREEK, TEXAS

The project was authorized by Public Law 100-676, the Water Resources Development Act of 1988. The plan of improvement is located in Harris County near Houston, Texas and includes: (1) enlargement of the lower 29.4 miles of Cypress Creek channel; (2) application of flood plain management techniques; (3) construction of recreation features including 11.5 miles of hike-and-bike trails and related facilities; and (4) habitat management measures on 844 acres of Harris County Parkway project land, creation of wooded and brush habitat along 100 acres of project right-of-way, acquisition of 329 acres of wildlife habitat, and creation of 35 acres of ponds and marshes. The project is estimated to cost $144 million (1 October 1989 price levels) of which about $37 million would be the local sponsor's share of the cost of improvement.

Preconstruction Engineering and Design funds in the amount of $250,000 were included in the Fiscal Year 1990 Energy and Water Development Appropriation Act. These funds were provided for the initiation of Preconstruction Engineering and Design, however they are being withheld pending completion of a review of the project requested by the Office of Management and Budget. However, $70,000 has been made available to the project to: recompute benefits based on growth projections consistent with Office Business Economics - Economic Research Service (OBERS) projections; review recreation information and benefits; recompute costs accounting for use of non-Federal public mitigation lands; review and analyze sill design and cost; and to review and analyze the Habit Evaluation Procedure (HEP) study to support incremental justification of mitigation lands. Upon completion of the review, the remaining funds appropriated for Fiscal Year 1990 are scheduled to be released for initiation of Preconstruction Engineering and Design.

CONSTRUCTION, GENERAL

The Fiscal Year 1991 request for Construction, General, in the amount of $130,428,000, would provide for construction activities on 22 projects. These funds, together with scheduled cash contributions from the local sponsors of $19,205,000, for a total of $149,633,000 will provide for a construction program that includes: the start of construction to correct a design deficiency on one project, the continuation of construction on 18 projects and the completion of three projects (Rio Grande Floodway, Truth or Consequences Unit, New Mexico; Boggy Creek, Austin, Texas; and Texas City and Vicinity, Hurricane Flood Protection, Texas).

The proposed total program of $149,633,000 for the Southwestern Division in Fiscal Year 1991 compares with the $147,341,000 in allocated Federal funds and local sponsors' cash contributions of $17,645,000 for a total program of $164,986,000 in Fiscal Year 1990. This decrease in funding level reflects completion of two projects in Fiscal Year 1990 (Fountain Creek, Pueblo, Colorado; and Puerco River, Gallup, New Mexico) and decreased efforts on three projects to be completed with the Fiscal Year 1991 funds requested.

CONTINUING CONSTRUCTION

The Fiscal Year 1991 request includes $130,428,000 to initiate the deficiency correction at one project, to continue 18 projects and to complete three projects that were funded in prior fiscal years. The corresponding estimated non-Federal outlays for Fiscal Year 1991 are $72,604,000 of which $19,205,000 are scheduled cash contributions. The total continuing construction program to be accomplished by the Southwestern Division in Fiscal Year 1991 is $149,633,000. These projects are located as follows: two in Arkansas; one in Arkansas and Oklahoma; two in Kansas; three in New Mexico; one in Oklahoma; and thirteen in Texas. The requested amount for Fiscal Year 1991 compares with the $147,341,000 allocated to these projects in the current year and reflects increased needs on several projects including Great Bend, and Halstead, Kansas; Mingo Creek, Tulsa, Oklahoma; and: Clear Creek; El Paso; Lake Wichita, Holliday Creek at Wichita Falls; and Sims Bayou, Houston; all in Texas. These increased requirements were partially offset by declining requirements for Cooper Lake and Channels, Mouth of Colorado River, Ray Roberts Lake, and San Antonio Channel Improvement, all in Texas, as they near completion of construction. These projects and their Fiscal Year 1991 funding requirements are listed on the following table:

FISCAL YEAR 1991 CONTINUING CONSTRUCTION PROGRAM

PROJECT	FY 1991 FEDERAL FUNDS REQUESTS	FY 1991 NON-FEDERAL CASH CONTRIBUTIONS	TOTAL FY 1991 NON-FEDERAL COSTS 1/
ARKANSAS			
Beaver Lake, (Water Quality)	$ 300,000	$ 325,000	$ 325,000
Fourche Bayou Basin, Little Rock	6,900,000	550,000	569,000
ARKANSAS AND OKLAHOMA			
McClellan-Kerr Arkansas River Navigation System, Locks and Dam	8,500,000	0	0
KANSAS			
Great Bend	9,000,000	650,000	4,950,000
Halstead	2,200,000	700,000	1,000,000
NEW MEXICO			
Acequias Irrigation System	2,000,000	1,822,000	1,822,000
Albuquerque North Diversion Channel	200,000	0	0
Rio Grande Floodway, Truth or Consequences Unit	1,417,000	326,000	1,743,000
OKLAHOMA			
Mingo Creek, Tulsa	13,600,000	1,500,000	12,943,000
TEXAS			
Boggy Creek, Austin	2,263,000	281,000	281,000
Clear Creek	3,700,000	657,000	8,315,000
Cooper Lake and Channels	17,400,000	0	0
El Paso	9,000,000	842,000	4,242,000
Freeport Harbor	11,000,000	4,459,000	5,089,000
Joe Pool Lake	600,000	0	0
Lake Wichita, Holliday Creek	11,200,000	1,900,000	2,300,000
Mouth of Colorado River	1,000,000	0	0
Ray Roberts Lake	4,900,000	0	0
San Antonio Channel Improvement	7,100,000	137,000	5,691,000
Sims Bayou, Houston	12,600,000	1,800,000	24,062,000
Taylors Bayou	4,700,000	2,950,000	8,950,000
Texas City and Vicinity	848,000	306,000	306,000
TOTALS	$130,428,000	$19,205,000	$72,604,000

1/ Includes Lands, Easements, Rights-of-Way, Relocations and Disposal Areas and Cash Contributions, as applicable.

BEAVER LAKE (WATER QUALITY ENHANCEMENT), ARKANSAS

The purpose of the project is to identify and implement measures which will optimize achievement of the existing Beaver Lake project purposes by preserving and enhancing the quality of the reservoir's water. This project was authorized by the Water Resource Development Act of 1986. Efforts are underway to secure a local cost sharing sponsor that will provide 25 percent of the cost as required by the Water Resource Development Act of 1986. Consummation of the Local Cooperation Agreement with the Arkansas Soil and Water Conservation Commission is scheduled for July 1990. The Fiscal Year 1991 request in the amount of $300,000 will be used to continue this work. Funds appropriated in Fiscal Year 1990 will be used to initiate land use management plans for individual parcels of land in coordination with the Soil Conservation Service, and a water quality monitoring program in consultation with the Environmental Protection Agency.

FOURCHE BAYOU BASIN, LITTLE ROCK, ARKANSAS

The plan for this project includes work along 7.3 miles of Rock and Grassy Flat Creeks, and 4.8 miles of Fourche Creek. The estimated first cost of this plan is $29,000,000 (including an allowance for inflation). In accordance with the cost sharing and financing concepts of the Water Resources Development Act of 1986, the Federal share of the project's first cost is estimated at $19,100,000 and the non-Federal share at $9,900,000.

The $6,900,000 requested for Fiscal Year 1991; together with a cash contribution of $550,000 from the local sponsor, will be used to continue .construction. In addition to the cash contribution of $550,000, the local sponsor is scheduled to expend $19,000 for real estate activities and relocations during Fiscal Year 1991. The initial contract for channel improvements on the downstream end of the project is complete and already providing some flood protection to the city of Little Rock. The second contract for channel improvements is underway with the third contract scheduled for a May 1990 award. The railroad relocation contract is also underway. Funds requested for Fiscal Year 1991 will be used primarily to continue these contracts. Overall project completion is now scheduled for March 1992. This delay in completion of nine months from the last reported date, is due to adopting a schedule for the last channel improvement contract to not conflict with relocations being performed by the City.

MCCLELLAN-KERR ARKANSAS RIVER NAVIGATION SYSTEM, LOCKS AND DAMS, ARKANSAS AND OKLAHOMA

This project provides for construction of locks, dams and channel work along the Arkansas River in Arkansas and Oklahoma. This navigation construction project, that is full-Federal funded, is estimated to cost $584,800,000. The approved remaining work consists of: construction of the Cutoff Containment Structure in the Entrance Channel between the White River and the Arkansas River, construction of Wilbur D. Mills Dam Stilling Basin

Enlargement, and studies to determine if an additional lock and dam at Montgomery Point in the Entrance Channel, required to improve navigation during low flows on the Mississippi River, can be recommended to Congress. Also, the Arkansas River Land Impact Study is underway to evaluate the need to acquire additional flowage easements along the Arkansas River. The $8,500,000 requested for Fiscal Year 1991 will be used to continue construction and study activities. The Entrance Channel Levee contract and the Wilbur D. Mills Dam Stilling Basin Enlargement contract will be continued. Engineering studies will continue in Fiscal Year 1991. The scheduled completion of the overall project is now September 1995. The change in completion date from September 1992 was required because of the addition of planning and design of Montgomery Point Lock and Dam and the acquisition of required lands in the Wilbur D. Mills pool.

GREAT BEND, KANSAS

The Great Bend, Kansas Project is a local flood protection project including a system of levees and channels being designed to reduce flood damages that occur frequently in that city. Major features of the project include about 7.3 miles of channel and 32.3 miles of levee. The plan of improvement will provide a 500 year level of protection to the city of Great Bend. The total estimated cost of this plan is $39,500,000 (including an allowance for inflation during the construction period) of which $27,200,000 would be Federal and $12,300,000 would be non-Federal costs. The remaining benefit-remaining cost ratio is 9.6 to 1 at 3-1/4 percent interest. Funds to initiate construction were provided in Fiscal Year 1987.. The Local Cooperation Agreement was signed on 23 July 1987 and the first contract for levee work was awarded on 25 November 1987.

The $9,000,000 requested for FY 1991, together with a cash contribution of $650,000 from the local sponsor, will be used to continue levee, channel construction and a railroad bridge relocation. During Fiscal Year 1991, the local sponsor is scheduled to expend $4,300,000 to obtain necessary land, easements, rights-of-way and continue construction of required relocations. The project is now scheduled for completion in August 1993. The delay in completion date from September 1992 was caused by design changes on the Walnut Creek diversion channel and levees.

HALSTEAD, KANSAS

The project, authorized by the Water Resources Development Act of 1986, consists of about four miles of earthen levees and three miles of channel modifications along the Arkansas River. The project has an estimated cost of $8,800,000 (including an allowance for inflation) of which $6,600,000 would be Federal and $2,200,000 would be non-Federal costs.

The Fiscal Year 1990 work effort will be directed toward completion of the plans and specifications. The $2,200,000

requested in Fiscal Year 1991 will be used to continue the construction contract which is scheduled to be awarded in August 1990. Construction is now scheduled to be finished in April 1993 instead of May 1992. This eleven month delay was caused by required revisions in the design and delays in the acquisition of real estate required for the project.

ACEQUIAS IRRIGATION SYSTEM, NEW MEXICO

The project was authorized by the Water Resources Development Act of 1986 which directs the U.S. Army Corps of Engineers to undertake measures without regard to economic analysis, as are necessary to protect and restore the river diversion structures and associated canals. The more than one thousand Acequias, or community ditch systems, have been in existence in New Mexico since the early Spanish Colonization periods of the 17th and 18th centuries and represent one of the oldest forms of cooperative institutions in the United States. Ten acequia contracts were completed with Fiscal Year 1988 funds.

A Local Cooperation Agreement covering the projects to be constructed with Fiscal Year 1989 funds was signed 8 June 1939. Fiscal Year 1989 funds, together with a 25 percent local sponsor cash contribution, were used to initiate construction on two acequia contracts and the design of ten additional acequia projects. In Fiscal Year 1990, utilizing Fiscal Year 1989 funds, construction of the two contracts awarded in Fiscal Year 1989 will be completed and eight additional construction contracts will be initiated.

Funds appropriated for Fiscal Year 1990 will be used to obtain a Local Cooperation Agreement for an additional ten acequia sites, prepare the designs for these sites and award the construction contracts for about five sites. The remaining contracts will be awarded in Fiscal Year 1991, using funds allocated in Fiscal Year 1990.

Negotiations with the local sponsor, the State of New Mexico, leading to a Local Cooperation Agreement for the remainder of the project have been initiated. Funds requested for Fiscal Year 1991 ($2 million) will be used to award contracts for ten additional acequia restoration projects. Based on an annual appropriation of $2 million in Federal funds, completion of the project is scheduled for Fiscal Year 2009.

ALBUQUERQUE NORTH DIVERSION CHANNEL
DEFICIENCY CORRECTION

The Albuquerque North Diversion Channel, in Albuquerque, New Mexico, is an existing flood control project, which provides protection from the Standard Project Flood. The project corrects a design deficiency at the Alameda Outlet structure. This deficiency comes from a hydraulic flow problem that exists at the bend in the concrete lined channel near the outlet into the Rio Grande. A hydraulic jump has been forming upstream of the

Atchison Topeka and Santa Fe Railroad bridge in lieu of its design location downstream of the bridge. The water surface at the bridge is greatly elevated at discharges far below the design value. These flow conditions significantly reduce the discharge capacity of the channel and would cause overtopping at a flow below the design discharge. The total project cost for the correction of the design deficiency is estimated at $2.6 million of which $1,950,000 would be Federal costs, and $650,000 would be non-Federal costs. The benefit cost ratio is 3.3 to 1.at 8-7/8 percent interest rate. The Local Cooperation Agreement is scheduled to be executed in April 1991.

The $200,000 requested for Fiscal Year 1991 will be used to initiate and complete a Feature Design Memorandum and plans and specifications, execute a Local Cooperation Agreement, and award a construction contract.

RIO GRANDE FLOODWAY,
TRUTH OR CONSEQUENCES UNIT, NEW MEXICO

The plan of improvement for the Truth or Consequences project is a detention dam located on the Cuchillo Negro Creek. The dam will rise 127 feet above the stream, have a crest length of 550 feet and be constructed of roller compacted concrete. The project has an estimated first cost of $13,600,000 with a remaining benefit-remaining cost ratio of 14.1 to 1 at 8-7/8 percent interest rate. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the Federal share of the project's first cost is estimated at $10,200,000 and the non-Federal share at $3,400,000. The Local Cooperation Agreement was consummated 27 September 1988.

Funds received for Fiscal Year 1990 are being used for construction of the dam. The contract for construction of the dam was awarded in September 1989. The $1,417,000 requested for Fiscal Year 1991 will be used to complete construction of the dam. Project completion is scheduled for June 1991.

MINGO CREEK, TULSA, OKLAHOMA

The project was authorized by the Water Resources Development Act of 1986. The plan of improvement includes 23 detention sites and 9.5 miles of channel improvements along the mainstem and some tributaries of Mingo Creek. The project has an estimated construction first cost of $167,800,000. The Federal share of the project's first cost is estimated at $101,300,000 and the non-Federal share at $66,500,000. Funds to initiate construction were provided in Fiscal Year 1988. The Local Cooperation Agreement was signed on 22 January 1988. The first construction contract was awarded in September 1988.

Funds requested for Fiscal Year 1991 in the amount of $13,600,000, together with a cash contribution of $1,500,000 from the local sponsor, will be used to continue channel improvements and construction of additional detention sites. In addition, the

local sponsor is scheduled to expend $11,443,000 in Fiscal Year 1991 for required lands, easements, rights-of-ways and relocations associated with construction of this project. The project is scheduled for completion in September 1995.

BOGGY CREEK, AUSTIN, TEXAS

The Current Year 1990 funds of $5,780,000 are being used to continue construction of Channel Improvement Part II, and to complete all other contracts, including Channel Improvement Part I and the railroad relocations.

The Fiscal Year 1991 request for $2,263,000 will be used to complete construction of: the channel improvements, the recreation facilities which consist essentially of hike and bike trails, and the mitigation areas. The contract for Channel Improvement Part I was completed in December 1989. Project completion is now scheduled for August 1991 instead of June 1991 as previously reported. The extension of the completion date was caused by delays in obtaining the required real estate which resulted in delay in the award of the channel improvement contract.

CLEAR CREEK, TEXAS

The project is located midway between Galveston and southeast Houston, Texas and includes about 15 miles of channel improvement above the existing Clear Lake, together with a gated outlet structure and channel between Clear Lake and Galveston Bay. The local sponsors, Galveston and Harris Counties, signed a Local Cooperation Agreement on 30 June 1986. Funds to initiate construction were appropriated by the Fiscal Year 1985 Supplemental Appropriations Act; however, initiation of construction had to be delayed to provide the local sponsors with additional time needed to acquire the necessary real estate and to construct required relocations prior to initiation of channel work.

The initial construction contract for an outlet structure from Clear Lake was awarded in May 1989. Funds provided for Fiscal Year 1990 are being used to initiate the railroad relocation and to continue construction of the second outlet gate, and continue design of the project. The $3,700,000 requested for Fiscal Year 1991, together with a $657,000 cash contribution from the local sponsor will be used to initiate construction on the second outlet channel, complete construction of the second outlet gate, and continue design of the project. Construction of the project is currently scheduled for completion in September 1995 instead of March 1994 as previously reported. The delay of 18 months was caused by delay in the award of the construction contract for the second outlet gate as the local sponsor did not complete the real estate acquisition in a timely manner, and the construction period for the gate was longer than anticipated.

COOPER LAKE AND CHANNELS, TEXAS

The Current Year 1990 funds for $28,155,000 are being used to continue: embankment, spillway and outlet works construction; land acquisition; cultural resource preservation; fencing; and to initiate clearing, revegetation, project building construction, and wildlife mitigation development in the Cooper Lake area.

The Fiscal Year 1991 request for $17,400,000 will be used to continue construction of the embankment, spillway and outlet works; continue cultural resource preservation, fencing, recreation development, revegetation, and land acquisition; and award the contract for mitigation development in the Cooper Lake area. Negotiations are currently underway with the Texas Parks and Wildlife Department to develop an acceptable plan for construction of the additional $5.0 million in recreation facilities which was provided by last years Appropriation Act. Overall project completion, now scheduled for June 1994, was delayed from September 1993 to reflect the time required to design and construct the additional recreational facilities.

EL PASO, TEXAS

Fiscal Year 1990 funds are being used to complete construction of Phelps Dodge Basin and initiate construction of Phelps Dodge Channel and Americas Basin in the Southeast Area. The Fiscal Year 1990 funds will also be used to initiate construction of the Pershing Dam Safety Modification in the Central Area.

The $9,000,000 requested for Fiscal Year 1991 will be used to continue construction of Phelps Dodge Channel and Americas Basin, complete construction of the Pershing Dam Safety Modification, and initiate construction of Bluff Channel. The entire project is scheduled for completion in September 1995.

FREEPORT HARBOR, TEXAS

The plan of improvement for the project provides for the construction of a new 4,200 foot North Jetty and removal of the existing North Jetty along the entrance channel; enlargement of the entrance channel to 400 feet wide and 47 feet deep; realignment, deepening, and widening of various existing channels and turning basins; construction of a new turning basin at the upper end; rehabilitation of the South Jetty; and required relocations. The Local Cooperation Agreement was signed on 26 June 1986 and subsequently modified on 19 March 1987, to reflect requirements of the Water Resources Development Act of 1986. Construction of the project is being accomplished by a cost sharing agreement with the local sponsor that is consistent with the cost sharing and financial concepts of the Water Resources Development Act of 1986.

Funds provided in Fiscal Year 1990 are being used to provide funds to the Coast Guard to construct a new station, continue

relocation of the 3700 feet of north jetty, complete dredging of the Brazos Harbor Channel and Turning Basin and Upper Turning Basin, and dredging of the entrance and jetty channels. The $11,000,000 requested for Fiscal Year 1991 will be used to complete dredging contracts for the Entrance and Jetty Channels and to initiate dredging of the main channels and basins. A contract award for rehabilitation of the South Jetty is scheduled for January 1991. In Fiscal Year 1991 the local sponsor is scheduled to contribute $4,459,000 in cash and expend an additional $630,000 on the project. The entire project is scheduled for completion in September 1993.

JOE POOL LAKE, TEXAS

The Joe Pool Lake project in the Dallas/Fort Worth metroplex is 99 percent complete. Three recreational park areas were opened to the public on August 18, 1989 by the Trinity River Authority. The only remaining major items of work are the Cedar Hill State Park and the Penn Farm restoration work. Fiscal Year 1990 funds are being used to complete construction of the state park. The Fiscal Year 1991 request for $600,000 will be used to complete real estate administration, and continue the Penn Farm restoration. Overall project completion is rescheduled for May 1993, due to restoration work on the historic Penn Farm site by the State of Texas.

LAKE WICHITA, HOLLIDAY CREEK, AT WICHITA FALLS, TEXAS

The plan of improvement for the Lake Wichita, Holliday Creek Project includes the rehabilitation of the existing Lake Wichita dam, including the adding of a concrete spillway and low-flow outlet works, and eight miles of channel improvements. The plan also includes a grass-lined channel from the new spillway to the Wichita River along Holliday Creek. The $11,200,000 requested for Fiscal Year 1991, together with a local sponsor cash contribution of $1,900,000, will be used to continue the contract for construction of the second phase of channel improvements which was awarded in September 1988 and the completion of design and award of the third phase. The local sponsor is scheduled to expend an additional $400,000 in Fiscal Year 1991 in the accomplishment of various relocations. Overall project completion is scheduled for June 1993.

MOUTH OF THE COLORADO RIVER, TEXAS

The project is located on the lower reach of the Colorado River in Matagorda County, Texas and consists of a jettied entrance channel, a navigation channel following the present Colorado River channel, a harbor and turning basin, a river diversion channel and relocation of the upper reach of the navigation channel.

The initial construction contracts were for the diversion channel which was awarded in June 1988 and the harbor and turning basin which was awarded in July 1988. The $1,000,000 requested for Fiscal Year 1991, together with the cash contributions from the sponsor will complete navigation connecting channels, complete construction of the diversion dam and construct Tiger Island Channel dam. The award of the oyster culch feature of the project has been delayed until June 1992, at the request of National Marine Fisheries as additional time is required for determination of the optimum location for the feature with the diversion channel in place. Overall project completion is now scheduled for December 1992 instead of June 1991.

RAY ROBERTS LAKE, TEXAS

The Fiscal Year 1991 request for $4,900,000 will be used to continue: land acquisition, Lewisville Lake boundary delineation, and construction of scheduled recreation facilities at Ray Roberts Lake; and to initiate development of the Diked Wetland. The post-authorization change report for adding a Greenbelt corridor between Ray Roberts Dam and Lewisville Lake was sent to Congress on 9 December 1988. Construction of the Greenbelt corridor which is currently estimated to cost $4.6 million (October 1989 price levels) and would require about four years to construct, is not scheduled pending Congressional Authorization. Project completion (except for the additional facilities at Lewisville which the Greenbelt would replace) is scheduled for June 1992. This delay of nine months, from September 1991 reflects a reassessment of the time required for construction of the scheduled recreational facilities.

SAN ANTONIO CHANNEL IMPROVEMENT, TEXAS

The Fiscal Year 1991 request for $7,100,000 will be used to complete construction of the tunnels on San Antonio River and San Pedro Creek and the above-ground intake and outlet works on San Pedro Creek, and to initiate construction of the intake and outlet works on San Antonio River. Contractor problems with the tunnel boring machine and in the erection of the precast liners has delayed completion of the tunneling work and subsequently has delayed by four months the overall project completion, now scheduled for July 1992.

SIMS BAYOU, HOUSTON, TEXAS

The project is located in Harris County, in the southern portion of Houston, Texas. The project was authorized by Public Law 99-662, the Water Resources and Development Act of 1986, and reauthorized by Public Law 101-101, the FY 1990 Energy and Water Development Appropriation Act. Reauthorization was required as the project cost estimate exceeded the limit established in Section 902 of Public Law 99-662. The recommended project provides for enlargement and rectification, with appropriate erosion control measures of 19.31 miles of Sims Bayou,

environmental measures and recreational development consisting of hike-and-bike trails connecting existing public parks, as well as picnic areas, and other day-use facilities. The project will eliminate stream flooding from 14,800 acres of urban lands and beneficially affect nearly 23,000 structures, mostly residential. The recreational development plan will partially satisfy existing demand in the area. The project cost is presently estimated at $265,500,000 (1 October 1989 price levels) and the benefit-cost ratio of the project is 11.6 to 1 at 8 5/8 percent interest. The Harris County Flood Control District and its governing body, the Harris County Commissioners Court have agreed to provide necessary local cooperation for the flood control portion of the project. A Local Cooperation Agreement for flood control is scheduled to be signed in June 1990. The Houston City Council has agreed to provide necessary local cooperation for the proposed recreation plan. Project completion is scheduled for September 1998.

TAYLORS BAYOU, TEXAS

The project is located in Jefferson, Chambers and Liberty Counties in the extreme southeast corner of Texas. The project is 53 percent complete and is scheduled for completion in September 1992. The project will significantly reduce the flood hazard in the upper watershed and resultant economic losses.

The $4,700,000 requested for Fiscal Year 1991 will be used to award the construction contract for channel rectification of Hillebrandt Bayou. The project cost estimate is currently $71,500,000. The sponsor, Jefferson County Drainage District No. 6, will provide $2,950,000 in cash contributions for construction and is expected to expend another $8.0 million for real estate and relocation construction in Fiscal Year 1991. Project completion is scheduled for March 1992.

TEXAS CITY AND VICINITY, TEXAS (HURRICANE-FLOOD PROTECTION)

The Project is located within the city limits of Texas City and LaMarque, Texas, on the southwest shores of Galveston Bay in Galveston County, Texas. The hurricane protection system to protect 36 square miles from a hurricane storm surge of 15 feet above National Geodetic Vertical Datum is essentially complete. Remedial measures are required as approximately 1.7 miles of levee toe that was protected by a sacrificial berm has eroded and is in critical need of repair. Further erosion threatens the integrity of the entire hurricane protection system and could result in a massive failure of the levees. The local sponsor for the project is the Galveston County Commissioners Court. The local sponsor has agreed to cost share in the remedial measures. After this work is complete, the entire project will be turned over to the local sponsor to perform operation and maintenance of the system.

The Fiscal Year 1991 request of $848,000, reflected on the justification sheet, was to complete construction of the project. However, favorable bids were received for the proposed work and the contract for remedial measures was awarded on 24 January 1990.

Federal funds currently available, together with the local sponsor's cash contribution, should be adequate to complete the contract. Pending unforseen events, it is anticipated that an additional appropriation in Fiscal Year 1991 for this project will not be required.

OTHER PROJECT FUNDED FOR CONSTRUCTION IN FISCAL YEAR 1990

The following project was funded for construction in Fiscal Year 1990. No funds are requested for Fiscal Year 1991.

WALLISVILLE LAKE, TEXAS

The project is located in Chambers and Liberty Counties, southeast of Houston, Texas. Construction of the project was initiated in Fiscal Year 1966, however, all construction activity was stopped by a court injunction in 1973. Based on additional studies a modified plan of improvement was authorized by Public Law 98-63. On May 11, 1987, the court of Appeals for the 5th Circuit dismissed the injunction. The current plan of improvement is a multipurpose project providing water storage, salinity control, and recreation. The modified plan includes 8 miles of dam and overflow spillway. The resultant 5,600 acre reservoir will provide water supply, navigation, recreation, and fish and wildlife benefits. The project will utilize an 84 X 600 foot navigation lock to facilitate existing and prospective commerce. The total estimated cost of this plan of improvement is $75 million of which $45.3 million remains to be appropriated.

The Fiscal Year 1990 Energy and Water Development Appropriations Act provided funds for the project and directed that construction be resumed and that continuing contracts be awarded until the project is complete. In accordance with language contained in this Public Law, award of a construction contract, having an estimated cost of $8.4 million, for a non-overflow dam on the west bank of the Trinity River is scheduled for June, 1990. An earlier award of the contract has been delayed because bald eagles' nests as well as bald eagles, which are an endangered species, were discovered within the project area in November 1989. Formal consultation between the Department of the Army and the Department of the Interior is being accomplished in accordance with the Endangered Species Act. Funds to continue this contract and to award subsequent contracts are not included in the Fiscal Year 1991 request as this project primarily produces water supply benefits and is therefore more properly developed by non-federal interests.

OPERATION AND MAINTENANCE

The Fiscal Year 1991 request for the Operation and Maintenance Appropriation for projects and activities in the Southwestern Division is $211,272,000. The requested funds will be divided among the major funding categories as follows: 20 percent for Channels and Harbors along the Texas Gulf coast; about 11 percent for Locks and Dams along the McClellan-Kerr Arkansas River Navigation System; 36 percent for Flood Control; and about 34 percent for Multiple Purpose Power Projects.

CHANNELS AND HARBORS

The Fiscal Year 1991 request for dredging and maintaining twelve projects along the Texas Gulf Coast is $41,901,000. The requested funds will provide for the continued maintenance of channel and harbor projects along the Texas Gulf Coast including the Gulf Intracoastal Waterway and the Houston Ship Channel.

LOCKS AND DAMS

The request of $22,403,000 for Fiscal Year 1991 for this category will provide for the operation of 13 Locks and Dams and the channel on the McClellan-Kerr Arkansas river Navigation System. Funds to provide for the operation of the remaining four locks are included in the request for each of four projects in the Multiple Purpose Power Projects category. The four locks are: Dardanelle Lock and Dam, Arkansas; Ozark-Jeta Taylor Lock and Dam, Arkansas; Robert S. Kerr Lock and Dam and Reservoir, Oklahoma; and Webbers Falls Lock and Dam, Oklahoma. The navigation system, which consists of 13 locks and dams, four multiple purpose projects and a channel between the structures, extends from the Mississippi River to the head of navigation at Catoosa, Oklahoma, which is about 15 miles east of Tulsa.

FLOOD CONTROL

The request of $76,030,000 for Fiscal Year 1991 will provide for the continued operation and maintenance of 70 flood control projects; three other flood control activities; and the completion of Major Rehabilitation work on one project. The 70 projects are located as follows: six in Arkansas; two in Colorado; eight in Kansas; one in Missouri; seven in New Mexico; 19 in Oklahoma and 27 in Texas. These requested funds will permit the effective operation of projects, like Birch Lake in Oklahoma which, although drought conditions existed for a large area, still collectively prevented an estimated $189 million in flood damages in Fiscal Year 1989.

MULTIPLE-PURPOSE POWER PROJECTS

The Fiscal Year 1991 request for 18 multiple-purpose power projects in the Southwestern Division is $70,878,000. These requested funds will provide for the continued operation and maintenance of these 18 projects and major rehabilitation work at one project. These projects are located as follows: six in Arkansas; one in Missouri; seven in Oklahoma; three in Texas; and one on the Texas-Oklahoma state line. These projects, like Broken Bow Lake in Oklahoma; Town Bluff Dam, B.A. Steinhagen Lake and Robert Douglas Willis Hydropower Project in Texas; and Denison Dam - Lake Texoma in Texas and Oklahoma; have a total installed capacity of 1,727 megawatts and produced 5.2 billion kilowatt-hours in Fiscal Year 1989. This electric production was more than the 4.6 billion kilowatt-hours produced in the previous drought year but not as much as the 5.9 billion kilowatt-hours produced in Fiscal Year 1987. These 18 projects, as a group, also provide one or more other benefits, including those for flood control, recreation, and water supply. Four of these projects, Dardanelle Lock and Dam, Arkansas; Ozark-Jeta Taylor Lock and Dam, Arkansas; Robert S. Kerr Lock and Dam and Reservoir, Oklahoma; and Webbers Falls Lock and Dam, Oklahoma, have locks that are an integral part of the McClellan-Kerr Arkansas River Navigation System.

PROTECTION OF NAVIGATION

The request for the Protection of Navigation Category for Fiscal Year 1989 is $60,000. These funds will be used for project condition surveys on those projects for which maintenance is not scheduled in Fiscal Year 1991.

MAJOR REHABILITATION PROJECTS

The Operation and Maintenance request for Fiscal Year 1991 includes $15,169,000 for major rehabilitation work on two projects. These projects are located in Arkansas and Oklahoma.

BEAVER LAKE, ARKANSAS

The Operation and Maintenance request for the Beaver Lake, Arkansas project includes $10,698,000 to continue construction on the major rehabilitation project at Beaver Dam. There has been seepage below Dike No. 1 since the initial filling of the pool. Previous grouting measures failed to stop this seepage. This seepage has continued to increase. The pool is now being operated two to five feet below the flood control level to minimize risk to the structure. The plan of improvement is a concrete seepage cutoff wall approximately 1,475 feet long with a maximum depth of 185 feet in and below Dike No. 1 and the north end of the main dam. A contract to construct the cutoff wall was awarded in June 1989. This work is estimated to cost $19,300,000 with completion of construction scheduled for February 1992. An eight month delay in completion was caused by a protest in contract award and delays in initiation of construction.

WISTER LAKE, OKLAHOMA

The flood control request also includes $4,471,000 to complete the Wister Lake, Oklahoma major rehabilitation project. Seepage through the embankment carried embankment materials as it exited along the downstream slope. The spillway outlet channel is a grass- and shale-lined structure. Discharges through this spillway caused considerable erosion. Future discharges threatened to undercut the spillway apron. The major rehabilitation project consists of constructing a slurry wall on the upstream side of the embankment, a toe drain collection system on the downstream side of the embankment and spillway repair. The total cost of these required modifications is estimated to be $11,300,000 and will be complete in September 1991. This completion date is one year earlier than last reported.

The total estimated project cost of $11,300,000 will be the full Federal appropriation. One of the water users, however, will be required to reimburse the Federal government for a portion of the major rehabilitation work. In this regard, the SUMMARIZED FINANCIAL DATA table, shown on page 151 of the justifications, does not reflect an amount to be reimbursed because the method of reimbursement has not been determined.

As noted in the STATUS OF LOCAL COOPERATION paragraph on page 153 of the justifications, the following information applies to the required reimbursement:

The Heavener Utility Authority, the Poteau Valley Improvement Authority and Applied Energy Services, Shady Point, Incorporated, have existing contracts for water supply storage. The contract with Applied Energy Services, Shady Point, Incorporated, is the only contract that has provisions for reimbursement of costs associated with major rehabilitation work. Cost sharing for the major rehabilitation work at Wister Lake will be subject to the same specific and joint use percent as the allocation of operation and maintenance costs for the project. Only about 3.3 percent of total useable storage is allocated to water supply and, of that, Applied Energy Services has contracted for 52 percent. The Assistant Secretary of the Army (Civil Works) (ASA (CW)) has ruled that Applied Energy Services must pay 1.734 percent of the rehabilitation costs incurred after they exercise their option to request releases from their storage in the project or at the end of their 48 month deferred payment period. Depending on beginning of releases from their storage, the repayment could range from $50,000 to $150,000. The ASA (CW) has, as an alternative, agreed to modify their contract to include the proposed rehabilitation costs in the investment cost for the storage to be repaid, thereby allowing the repayment over the remainder of the water supply contract repayment period.

TEXAS FLOODING, MAY - JUNE 1989

The months of May and June 1989 were extremely wet for a large portion of Texas. Major storms struck in three periods: 3-5 May, 16-18 May and 1-15 June. During each storm, small hail was

observed throughout the area and high winds were reported to be as severe as 100 miles per hour. Straight line winds, tornadoes and high water caused extensive damage. Flood related deaths numbered approximately 25. Disaster areas were declared in 64 counties within the Fort Worth District. The total rainfall in many areas was over 20 inches or from 2/3 to 3/4 of the average annual amounts. With half of the year to go, Dallas/Fort Worth area had exceeded its normal yearly rainfall of 29.46 inches with 30.21 inches recorded. Damage to both public and private properties was extensive. All lakes in North Texas were full or nearly full. The total of flood damages prevented by Corps of Engineer projects in the Fort Worth District of north and east Texas, during the period of 1 October 1988 through 31 August 1989, was estimated to be $450 million.

WATERWAY USE BY THE MILITARY

Several years ago, the use of the McClellan-Kerr, Arkansas River Navigation system was tried as a method of transporting military vehicles and equipment. This trial was so successful that other movements have been accomplished. The 101st Airborne Division at Fort Campbell, Kentucky, became the first active duty army unit, and the tenth military unit in three years, to transport combat support equipment for training exercises on the waterways. This movement included two tow boats, 40 barges and 693 pieces of equipment. In addition to substantial cost savings of moving heavy equipment on the waterways, there are other advantages. First, weight is not a constraint as barges can carry tonnage well beyond that associated with military equipment. Wide and oversize equipment can also be moved on the waterways without any special handling, and the equipment is ready to deploy upon arrival without any assembly. The waterway itself acts as a barrier against vandalism and theft. By removing vehicles from the highways, military waterway movements promote safety and minimize inconvenience to the public. Although not on a Southwestern Division waterway, a recent movement of the 20th Engineers, was performed by ocean going barge from Lock C on the Cumberland River via the Tennessee-Tombigbee waterway to Belize, in Central America. The cargo did not have to be reloaded at Mobile Harbor. In using the waterway, the nations mobilization capacity is enhanced as the military users, the commercial carriers and the Corps develop expertise in employing this mode.

SUMMARY

The Southwestern Division has many water resource problems and needs in an area that extends from middle Kansas, south to the Texas Gulf Coast, and from the Rocky Mountains of Colorado and New Mexico, east to the eastern parts of Arkansas and Missouri.

In summary, the total request of $352,868,000 in Federal funds for Fiscal Year 1991, together with the scheduled cash contributions of $21,413,000 from the local sponsors, will help solve some of the problems and meet some of the water resources needs of the area.

27-138 O—90——25

Justification of Estimate for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY SOUTHWESTERN DIVISION

	FY 1990 Allocation	FY 1991 Request	Increase or Decrease
General Investigations			
Surveys	$ 3,216,000	$ 4,042,000	$ + 826,000
Preconstruction Engineering and Design	4,965,000	7,126,000	+ 2,161,000
Construction, General			
Construction	147,341,000	130,428,000	-16,913,000
Operations and Maintenance, General			
Project Operation and Maintenance	174,576,000	196,103,000	+21,527,000
Major Rehabilitation	12,974,000	15,169,000	+2,195,000
TOTAL	$343,072,000	$ 352,868,000	$+ 9,796,000

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 — Southwestern Division

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

1. SURVEYS - NEW

a. Navigation Studies: None

b. Flood Damage Prevention Studies: None

c. Shoreline Protection Studies: None

d. Special Studies: None

e. Comprehensive Studies: None

f. Project Review Studies: None

2. SURVEYS - CONTINUING

a. Navigation Studies: The amount of $353,000 is requested in Fiscal Year 1991 for continuation of one study and completion of one study.

Texas

Matagorda Ship Channel	790,000	300,000	214,000	276,000	0

The objective of this study is to determine the feasibility of modifying the Matagorda Ship Channel in the interest of commercial navigation. The existing project is located about 80 miles northeast of Corpus Christi and provides for an outer bar and jetty channel 38 feet deep, 300 feet wide, and about 4 miles long from the Gulf of Mexico through a man-made cut across Matagorda Peninsula; an inner channel 36 feet deep, 200 feet wide, and about 22 miles long across Matagorda and Lavaca Bays to Point Comfort; a turning basin at Point Comfort 36 feet deep and 1,000 feet square; and dual jetties at the entrance from the Gulf of Mexico. Additional water depths are being requested by the existing project users, one of which is contemplating a major plant expansion at Point Comfort. A deeper channel would enable the use of larger vessels resulting in decreased shipping costs. The reconnaissance phase of the study will evaluate potential tonnage projections,

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Texas (Continued)

Matagorda Ship Channel (Continued)

transportation savings, construction costs and dredged material disposal options. The potential local sponsor, Calhoun County Navigation District, understands the requirement for cost sharing the feasibility phase and is prepared to participate if the reconnaissance resulcs are satisfactory to them.

Fiscal Year 1990 funds are being used to fund the Federal share of initiating the feasibility phase of the study. Funds requested for Fiscal Year 1991 would be used to complete the Federal share of the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $980,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,280,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	490,000
Feasibility Phase (Non-Federal)	490,000

The reconnaissance studies were completed in November 1989. The feasibility study is scheduled to be completed in September 1991.

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29 JAN 1990
R 20 FEB 1990

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Port Lavaca to Red Bluff	400,000	0	43,000	77,000	280,000

The existing Federally constructed and maintained shallow-draft Channel to Red Bluff project is 6 feet deep. 100 feet wide, 20.1 miles in length, traverses Lavaca Bay through Calhoun County and extends up the Lavaca and Navidad Rivers into Jackson County. The Channel to Red Bluff branches to the north from the 12-foot-deep and 125-foot-wide Port Lavaca Channel at about Mile 2.5. Maintenance dredging is performed about every 3 years in the 6.5 miles of open-bay channel. However, maintenance dredging is not required in approximately 14 miles of the landlocked reach of channel. The study will determine the need and advisability of modifying the existing Channel to Red Bluff in the interest of commercial navigation. Economic pressures, stemming primarily from the Alcoa Aluminum Processing Complex at Point Comfort, are generating a need for additional water transportation facilities in the area served by the Channel to Red Bluff. The existing channel dimensions severely constrain expansion of the waterborne commerce because barge traffic currently using the 12 by 125 foot GIWW and Port Lavaca Channel cannot operate in a fully-loaded configuration on the projections, transportation savings, construction costs, and dredged material disposal options. The sponsors for subsequent feasibility phase studies are the Jackson and Calhoun County Navigation Districts. The funds requested for Fiscal Year 1990 will be used to initiate the reconnaissance phase of the study at full Federal expense. The funds requested for FY 1991 will be used to complete the reconnaissance studies and initiate the feasibility phase studies. The preliminary estimated cost of the feasibility phase is $600,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$700,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	300,000
Feasibility Phase Non-Federal)	300,000

The reconnaissance studies are scheduled for completion in June 1991. The feasibility study is scheduled for completion in September 1994.

SUBTOTAL NAVIGATION STUDIES	1,190,000	300,000	257,000	353,000	280,000

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

b. Flood Damage Prevention Studies: The amount of $2,609,000 is requested in Fiscal Year 1991 for continuation of eight studies and completion of two studies.

Arkansas

Central Arkansas	1,570,000	600,000	171,000	500,000	299,000

The study area consists of approximately 4,000 square miles in central Arkansas, including all or portions of Pulaski, Faulkner, Saline, White, and Lonoke Counties. The river basins included in the study area are the White, Arkansas and Ouachita. Principal cities in the study area include Little Rock, North Little Rock, Conway, Jacksonville, Benton, and Searcy, Arkansas. Area population is over 500,000. This study will investigate flood problems which vary in severity throughout the area. It is estimated that the Pulaski, Saline, Lonoke County area experiences average annual damages in excess of $2,000,000, excluding the Fourche Creek (Little Rock) and Dark Hollow (North Little Rock) drainage basins. Average annual damages have not been computed for White and Faulkner counties outside of ongoing studies. Possible solutions include channelizations, canals, levees, floodwalls, bridge alterations, and impoundments. Navigation as well as water supply needs will be addressed in conjunction with flood control. Local governments have indicated interest in this study and understand the requirements of local cost sharing of the feasibility phase of the study as set forth in the Water Resources Development Act of 1986.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,940,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,540,000
Reconnaissance Phase (Federal)	600,000
Feasibility Phase (Federal)	970,000
Feasibility Phase (Non-Federal)	970,000

The reconnaissance studies are scheduled for completion in April 1990. The feasibility study is scheduled for completion in September 1992.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Kansas					
Arkansas River and Tributaries, Great Bend, Kansas to Tulsa, Oklahoma	4,900,000	3,976,000	342,000	582,000	0

This portion of the Arkansas River Basin, including the Cimarron River Basin, has a drainage area of 38,600 square miles and includes approximately 890,000 acres of flood-prone land. Major floods occur about once in three years in the upstream area and about once in seven years in the downstream area, inundating rural and urban areas. The study will determine short and long-range water resource development plans for meeting basin needs including improvements for extension of navigation, flood control, water supply, irrigation, recreation, hydroelectric power, and allied uses. Studies completed to date show that costs for extending navigation on the McClellan-Kerr Arkansas River Navigation System would exceed benefits, and those studies have been suspended. Eleven potentially feasible projects were originally identified. Three of these: a local flood protection project at Halstead, Kansas; a small dam watershed flood control project for the Little Arkansas River, Kansas; and the Arkansas City Levee project, were authorized by the Water Resources Development Act of 1986. The remaining eight include the installation of hydropower at Kaw Lake which has been discontinued because of non-Federal development, and seven large flood control, water supply, and recreational lake projects in Kansas (Arlington, Cunningham, Norwich, Wellington, Arkansas City, Silverdale, and Grouse Creek Lakes). Formulation studies indicated that only one of those seven lakes is economically justified; that project is Norwich Lake, a large multiple purpose lake which would be located about 6 miles north of the city of Norwich in Kingman County, Kansas. Ongoing studies will identify the optimum site.

Fiscal Year 1990 funds will be used to continue feasibility studies on the Norwich Lake site. Funds requested for Fiscal Year 1991 would be used to complete feasibility studies in September 1991.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Kansas (Continued)					
Caney River, Kansas and Oklahoma	904,000	384,000	30,000	210,000	280,000

The study area is located in Tulsa, Washington and Rogers Counties, Oklahoma. There are two existing and one authorized Corps Lakes in the Caney River Basin in Oklahoma: Copan, Hulah and Sand, respectively. The major water resource problems and needs in the basin include flood control, water supply and bank erosion. Copan and Hulah Lakes provide limited flood protection for the cities of Dewey and Bartlesville, the major urban areas in the basin. The Caney basin below Hulah and Copan Lakes sustained a total of $65,000,000 in damages from the 1986 flood. Bartlesville and Dewey sustained over $40,000,000 in damages in the 1986 flood. Rural flooding and streambank erosion are continuing problems throughout the basin. The initial reconnaissance phase studies were completed in September 1984. These studies, however, focused primarily on examining solutions to water supply problems in the study area. Sand Lake would not provide the additional flood protection needed in the basin. An expanded reconnaissance study examined structural and nonstructural flood control and bank stabilization alternatives including levees, channel improvements, and flood plain acquisition. Potential feasibility study sponsors include the cities of Bartlesville and Dewey and Washington, Rogers and Tulsa Counties, and the state of Oklahoma.

Fiscal Year 1990 funds will be used to initiate the feasibility phase study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase. The estimated cost of the feasibility phase is $1,040,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,424,000
Reconnaissance Phase (Federal)	384,000
Feasibility Phase (Federal)	520,000
Feasibility Phase (Non-Federal)	520,000

The reconnaissance studies were completed in February 1989. The feasibility study is scheduled for completion in May 1993.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
New Mexico					
Albuquerque Arroyos, Rio Grande and Tributaries	800,000	0	180,000	140,000	480,000

The study area lies on the Rio Grande in a rapidly developing area of the City of Albuquerque. The study will determine the need for additional flood control in this community. The study will consider the effect of recent urban growth on the capacities of the existing North and South Albuquerque Diversion Channels as well as the need for additional flood control improvements. The Albuquerque Metropolitan Arroyo Flood Control Authority is concerned that change in the hydrologic regimen in the drainage area has resulted in lowered levels of flood protection. Flooding on the east mesa area of Albuquerque during July of 1988 caused one death and damaged approximately $8 million worth of public infrastructure and private property. The Albuquerque Metropolitan Arroyo Flood Control Authority and the city of Albuquerque understand the two-phase planning process and are the most likely entities to participate in a feasibility study on a 50-50 cost sharing basis.

Fiscal Year 1990 funds will be used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance studies and initiate the feasibility phase study. The estimated cost of the feasibility phase is $1,000,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,300,000
Reconnaissance Phase (Federal)	300,000
Feasibility Phase (Federal)	500,000
Feasibility Phase (Non-Federal)	500,000

The reconnaissance studies are scheduled to be initiated in April 1990. The reconnaissance studies are scheduled for completion in March 1991. The feasibility study is scheduled for completion in September 1993.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
New Mexico (Continued)					
Las Cruces, New Mexico, El Paso and Vicinity	1,000,000	0	260,000	130,000	610,000

The city of Las Cruces and Dona Ana County have requested the Corps investigate local flood problems with emphasis on newly developed and rapidly developing areas in the city and county. The Las Cruces area, influenced by the El Paso, Texas regional growth, is one of the most rapidly growing regions in the United States. With increased development has come the inherent problems of local drainage and flood control. The city of Las Cruces, in land size, remained fairly stable until 1985. From 1985 until 1988 with the annexation of county land to the City, Las Cruces has experienced a 53 percent increase in size. Las Cruces enjoyed a 2.2 percent annual population growth rate from 1970 to 1980. It is estimated that the population growth rate from 1980 to 1987 exceeds 4 percent per annum. The current population of the county is about 58,000 people. Specific areas of flooding which have concerned local officials include the south-east portion of the city, the east bench, and the north valley area. These areas have experienced significant flood damages from late summer storms. The most recent history of flooding in the Las Cruces area occurred on 22-23 August 1987. The official measurement of rainfall in the area ranged from 4 to 5 inches during one night. This study will address urban and agriculture flood damage reduction, erosion control, water supply, recreation, and fish and wildlife enhancement.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,260,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,630,000
Reconnaissance Phase (Federal)	370,000
Feasibility Phase (Federal)	630,000
Feasibility Phase (Non-Federal)	630,000

The reconnaissance studies are scheduled to be initiated in February 1990. The reconnaissance studies are scheduled for completion in January 1991. The feasibility study is scheduled for completion in August 1993.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Oklahoma					
Crutcho Creek	650,000	250,000	30,000	100,000	270,000

The Crutcho Creek study area, which includes both Crutcho and Little Crutcho Creeks watersheds, has a drainage area of about 44 square miles and is located in south central Cleveland County, and Oklahoma County, Oklahoma. The study area is primarily urban and includes parts of Oklahoma City, Del City, Midwest City and Tinker Air Force Base. The most prominent problem is flooding which occurs along Crutcho Creek and its tributaries. The flooding results in damage to public and private and Tinker Air Force Base properties. These damages have increased due to the rapid urbanization of the basin. The three largest floods of record on Crutcho Creek occurred 3 June 1932, 12 June 1944, and 10 June 1945. Reoccurrence of these floods, under present conditions, would result in damages in excess of $1,700,000, $1,400,000, and $1,100,000 respectively. The most recent flooding along Crutcho Creek occurred in June 1989. The Board of County Commissioners for Oklahoma County has asked that a comprehensive water management study be made for the entire study area. The investigation will focus on detailed hydrologic and hydraulic studies to define the current limits of the water resource problems. Once defined, alternative solutions will be developed to address those problems. Oklahoma County and three cities and Tinker Air Force Base will be the local sponsors and are aware of the cost sharing requirements for the feasibility study.

Fiscal Year 1990 funds are being used to initiate a feasibility phase study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase study. The preliminary estimated cost of the feasibility phase is $800,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,050,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	400,000
Feasibility Phase (Non-Federal)	400,000

The reconnaissance studies are scheduled to be completed in March 1990. The feasibility study is scheduled for completion in September 1993.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Oklahoma (Continued)					
Miami, Oklahoma and Vicinity	720,000	420,000	120,000	105,000	75,000

The study area is the Grand (Neosho) River Basin from John Redmond Dam, Kansas, to the confluence of the Arkansas River, Oklahoma, with particular interest in the Miami, Oklahoma, area. Miami has experienced a high recurrence of flooding from the Grand (Neosho) River. Floods over the past four years have occurred much more frequently than throughout the prior period of recorded stream events. These events, at Miami and other locations in the vicinity, have ranged from two or more minor floods per month to larger floods. Local interests have questioned the cause of the frequent flooding and have suggested potential solutions, including dredging, flood control reservoirs, channel improvement, levee protection, reservoir storage reallocations of existing Grand River lakes, and other measures. The largest of the recent floods, September-October 1986, is estimated to have caused $11.6 million in damages at Miami and nearby communities. That flood, a 30-year frequency event, was only 46 percent of the discharge of the 1951 flood of record. Several communities have made inquiries into the services which could be provided by the Corps in solving the flood problems. The Mayor and members of the city governing body of Miami have met with the Corps and are aware of the policy on cost sharing and the procedures involved in two-phase study development. In a letter, dated 28 May 1987, to the Governor of Oklahoma, the Mayor of Miami requested assistance in obtaining a Federal study to examine the flood situation and the flood control operation of Grand Lake.

Fiscal Year 1990 funds are being used to initiate a feasibility phase study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase study. The preliminary estimated cost of the feasibility phase is $600,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$1,020,000
Reconnaissance Phase (Federal)	420,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (Non-Federal)	300,000

The reconnaissance studies were completed in March 1989. The feasibility study is scheduled for completion in April 1993.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas					
Abilene, Brazos River Basin	490,000	290,000	158,000	42,000	0

The study area is located in and around Abilene, Taylor County, Texas. The study area includes the Elm and Cat Claw Creeks. Elm Creek originates southwest of Abilene, Texas, and flows northeasterly through Abilene to its confluence with the Clear Fork of the Brazos River, which is a tributary of the Brazos River. The watershed of Elm Creek has a drainage area of 485 square miles, of which about 355 square miles are upstream of the city of Abilene, an overall length of about 52 miles, and a maximum width of 23 miles. This perched stream has insufficient channel capacity to handle a 15-year storm event and excess flood waters spill over into Little Elm and Cat Claw Creeks, further compounding these streams' flood control problems. Cat Claw Creek originates south of the city limits of Abilene and flows parallel to Elm Creek and empties into Elm Creek toward the northern middle of the city. The watershed of Cat Claw Creek has a drainage area of 14.2 square miles, an overall length of 16 miles, and a maximum width of 6.3 miles. Abilene had an estimated 1984 population of 107,000 and has experienced loss of physical property and injuries to flood victims as a result of flooding along Elm and Cat Claw Creeks. Thirteen notable storms produced flooding and resultant property damage and injuries since 1972. As the upper watersheds of Elm and Cat Claw Creeks are further developed with industrial parks and residential areas, peak flows on these creeks will increase and flood problems will become more frequent and critical in the lower portion of these watersheds. The most recent major flood occurred from 12-14 October 1981 caused losses of more than $6 million ($7.7 million, 1 October 1989 price levels) and damaged over 450 homes and an unknown number of businesses. Local interests desire improvements to reduce the threat of future damage in Abilene from floods on Elm and Cat Claw Creeks. A Feasibility Cost Sharing Agreement was executed on 15 February 1989 with the city of Abilene who is the local sponsor.

Fiscal Year 1990 funds are being utilized to continue work on the feasibility study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $600,000 which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$790,000
Reconnaissance Phase (Federal)	190,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (non-Federal)	300,000

Reconnaissance studies were completed in September 1988. The feasibility study is scheduled for completion in April 1991.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
San Bernard River Watershed	620,000	0	210,000	150,000	260,000

The San Bernard River extends inland from the upper Texas coast and lies between the Brazos and Colorado Rivers. The watershed of about 1,000 square miles extends inland about 130 miles from the Gulf of Mexico and provides drainage to portions of Austin, Colorado, Fort Bend, Brazoria, and Wharton Counties. Land use is largely agricultural; however, portions of the watershed have been affected by the urban expansion of the Houston metropolitan area. The cities of Eagle Lake, Brazoria, East Bernard, and several smaller towns and communities are located within the basin. A major oil refinery is located in the lower portion of the watershed. The area is subject to intense rainstorms of tropical and non-tropical origin. Major flooding has occurred in 1899, 1913, 1921, 1938, 1960, and 1985. Flood damages in 1985 exceeded $1,760,000 (1 Oct 89 price levels). The study will address urban and rural flood damage reductions. Studies will focus on developed areas affected by stream and riverine flooding. The Commissioners Courts of Wharton and Fort Bend Counties have expressed interest in local sponsorship for the feasibility studies and possible flood damage reduction projects. It is likely that other counties affected by stream flooding will join in local sponsorship.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $740,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of the study cost sharing is as follows:

Total Estimated Study Cost	$990,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	370,000
Feasibility Phase (Non-Federal)	370,000

The reconnaissance studies are scheduled for completion in April 1991. The feasibility study is scheduled for completion in December 1993.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Upper Trinity River Basin	3,070,000	450,000	330,000	650,000	1,640,000

The Upper Trinity River Basin extends upstream from the confluence of the East Fork and the mainstem of the Trinity River, has a drainage area of approximately 8,100 square miles and includes the Dallas-Fort Worth, Texas, Metroplex. This area had an estimated population in 1986 of over 3.5 million. Existing Corps of Engineers projects providing flood control and serving allied purposes include six multiple-purpose lakes (Benbrook, Grapevine, Joe Pool, Lavon, Lewisville and Ray Roberts Lakes) and four floodway projects consisting of levee and channel improvements. Two additional floodway projects, the Dallas Floodway Extension and West Fork Floodway, are authorized but have not been constructed. When the existing projects were constructed the designs were based on development criteria appropriate at that time. However, development has exceeded expectations and the magnitude of storm runoff has increased beyond the values used in project design. Additionally, modifications to upstream non-Federal reservoirs have caused some reduction in the freeboard of the existing Corps floodway projects. More importantly, current and proposed development trends in the Dallas-Fort Worth Metroplex, primarily along the main stem Trinity River between Dallas and Fort Worth, stand to further worsen existing flooding conditions. It is estimated that in the event of the standard project flood, approximately 87,700 acres of flood plain properties within the Dallas-Fort Worth Metroplex would be inundated, resulting in an estimated $13.7 billion in damages. The last major flood occurred May-June 1989 during which extensive flooding took place in the study area and eighteen lives were lost. All existing flood control projects prevented a total estimated $300 million in damages. All of the Corps lakes (except for Ray Roberts Lake) in the Upper Trinity River Basin were either close to the top of or overflowing the spillway; however, these reservoirs prevented an estimated $125 million of the total damages prevented. This study will address improvements in the interest of flood protection, environmental enhancement, water quality, recreation, and other allied purposes in the Upper Trinity River Basin with specific attention on the Dallas-Fort Worth metroplex. Nine communities within the Dallas-Fort Worth Metroplex area, the North central Texas Council of Governments, and the Trinity River Improvement Association requested Congressional action for this study.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Texas (Continued)

Upper Trinity River Basin (Continued)

Fiscal Year 1990 funds are being used to complete the reconnaissance phase and to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $4,680,000, which is to be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$5,410,000
Reconnaissance Phase (Federal)	730,000
Feasibility Phase (Federal)	2,340,000
Feasibility Phase (non-Federal)	2,340,000

The reconnaissance studies are scheduled for completion in March 1990. The feasibility study is scheduled for completion in September 1993.

SUBTOTAL FLOOD DAMAGE PREVENTION STUDIES	14,724,000	6,370,000	1,831,000	2,609,000	3,914,000

c. Shoreline Protection Studies: The amount of $80,000 is requested in Fiscal Year 1991 for continuation of one study.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas					
Matagorda County Shore	590,000	0	100,000	80,000	410,000

The Gulf of Mexico shore in Matagorda County, Texas, extends from Cedar Lakes on the east to Pass Cavallo on the west. To provide a basis for analyzing the coastal processes in this reach, the study area will extend from Freeport jetties to Pass Cavallo. The area adjacent to the Mouth of the Colorado River, Sargent Beach and other shores will be the focus for potential beach erosion control and storm damage prevention projects. Gulf beach average erosion rates in the study area range from 5 feet per year to more than 30 feet per year with storm-induced waves and water levels being the primary agents that remove sand from the beach. More than 100 homes in the study area are subject to loss or damage by erosion. In addition to residential structural damages, land, utilities, roads and infrastructure are subject to loss. The study is needed to determine possible Federal interest in controlling the erosion, to determine the feasibility of erosion control, and to evaluate the type and extent of measures to resolve the erosion problem.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $860,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,020,000
Reconnaissance Phase (Federal)	160,000
Feasibility Phase (Federal)	430,000
Feasibility Phase (Non-Federal)	430,000

The reconnaissance studies are scheduled for completion in March 1991. The feasibility study is scheduled for completion in September 1994.

SUBTOTAL SHORELINE PROTECTION STUDIES	590,000	0	100,000	80,000	410,000

d. Special Studies: None

e. Comprehensive Studies: None

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

f. Project Review Studies: The amount of $1,000,000 is requested in Fiscal Year 1991 for continuation of two studies.

Texas

Gulf Intracoastal Waterway, Aransas National Wildlife Refuge	1,640,000	140,000	149,000	500,000	851,000

The study area is located approximately 43 miles southeast of Victoria, Texas, in Aransas and Calhoun Counties. The study will investigate erosion problems along a 13.25-mile reach of the Gulf Intracoastal Waterway (GIWW) within the boundary of the Aransas National Wildlife Refuge, as well as an additional 15 miles of GIWW channel eastward of the refuge but within the designated critical habitat of the whooping crane. The refuge provides a wintering habitat for the rare and endangered whooping crane, as well as for many other birds and mammals. Portions of the banks of the GIWW crossing the refuge are experiencing erosion varying from a long-term average of 1/2 to 3 feet per year. The erosion is caused primarily by combinations of traffic on the waterway and wave action from exposure to open expanses of bay waters south and southeast of the channel. Changes to the wintering habitat of the whooping crane, whether gradual or evulsive, could be significant. The importance of the GIWW to the economy of the lower Texas coast is also a well-documented fact, and its uninterrupted usage is critical.

Fiscal Year 1990 funds are being used to initiate feasibility studies at full Federal expense. The funds requested for Fiscal Year 1991 will be used to continue feasibility studies. A summary of study cost is as follows:

Total Estimated Study Cost	$1,640,000
Reconnaissance Phase	140,000
Feasibility Phase (All Federal)	1,500,000

The reconnaissance studies were completed in November 1989. The feasibility study is scheduled to be completed in September 1993.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Gulf Intracoastal Waterway, Sargent Beach	1,140,000	140,000	150,000	500,000	350,000

The study area is located at Sargent, Texas in Matagorda County between East Matagorda Bay and Cedar Lakes, approximately 170 miles north of Corpus Christi and 20 miles southwest of Freeport. There is a serious erosion problem which will, if not addressed in the near future, affect the economically important Gulf Intracoastal Waterway (GIWW). This portion of the GIWW parallels the Gulf of Mexico shoreline for about 7 miles and is separated from the Gulf by a land barrier varying in width from about 600 to 900 feet. Erosion along this reach of shoreline has destroyed 40 or more beach homes in the past 10 to 15 years. More than 100 homes are still located between the Gulf of Mexico and the GIWW, most of which are located adjacent to the GIWW. From 1974 to 1982, the erosion rate averaged 30 feet per year; however, the rate has increased to over 50 feet per year since 1978. If the present erosion rates continue unchecked, the Gulf will breach the GIWW soon after the year 2000. This would essentially close the waterway to barge traffic requiring some alternative transportation mode to carry the existing commodities. This reach of the waterway carried nearly 19 million tons in 1987.

Fiscal Year 1990 funds are being used to initiate feasibility studies at full Federal expense. The funds requested for Fiscal Year 1991 will be used to continue feasibility studies. A summary of study cost is as follows:

Total Estimated Study Cost	$1,140,000
Reconnaissance Phase	140,000
Feasibility Phase (All Federal)	1,000,000

The reconnaissance studies were completed in November 1989. The feasibility study is scheduled to be completed in September 1992.

SUBTOTAL PROJECT REVIEW STUDIES	2,780,000	280,000	299,000	1,000,000	1,201,000
TOTAL SURVEYS - CONTINUING	19,284,000	6,950,000	2,487,000	4,042,000	5,805,000
TOTAL SURVEYS	19,284,000	6,950,000	2,487,000	4,042,000	5,805,000

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) - NEW

a. Navigation: None

b. Flood Control: None

c. Shoreline Protection: None

d. Multiple Purpose: None

4. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) - CONTINUING

a. Navigation: The amount of $1,499,000 is requested in Fiscal Year 1991 for continuation of one study and completion of two studies.

Texas

Brazos Island Harbor (42-foot project)	2,050,000	1,093,000	742,000	215,000	0

Most of the commerce moving on the existing 36-foot Brazos Island Harbor channel consists of grain exports from the fertile Rio Grande Valley. Many bulk grain vessels calling on the Port of Brownsville have drafts greater than the current safe operating draft for the waterway. These vessels are required to either light-load or move with caution at high tide. With a deeper channel, larger, more efficient grain ships could be used and a substantial savings in the transportation costs would be achieved. Additionally, a large portion of Lower Rio Grande Valley grain, presently exported through other ports, would be redirected to Brownsville for export, resulting in a substantial savings in overland transportation costs. Large ships cannot be turned safely in the existing Brownsville turning basin. Accordingly, enlargement of the turning basin is needed to accommodate the larger vessels projected to use the improved waterway. A feasibility report was completed in August 1978 and submitted to Congress in October 1983. The recommended project, estimated to cost about $38.0 million, based on October 1989 price levels with inflation through the construction period, provides for enlargement of the entrance channel from deep water in the Gulf of Mexico to the Laguna Madre to a depth of 44 feet and a width of 400 feet; enlarging the channel from the Laguna Madre to the Turning Basin to a depth of 42-feet and a width of 300 feet, enlargement of the

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Texas (Continued)

Brazos Island Harbor (Continued)

Turning Basin Extension to a point 800 feet beyond the grain elevator to a depth of 42 feet at widths varying from 325 to 400 feet and removal of Brownsville Navigation District Wharves 5, 6, and 9 to permit widening of the adjacent portion of the Turning Basin to 1,200 feet at a depth of 36 feet. The average annual benefits amounts to $15.4 million, all navigation. The benefit-cost ratio is 4.1 to 1 at 8-5/8 percent.

The project was authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost-sharing and financing concept reflected in the Water Resources Development of 1986, local interests are required to provide lands, easements, rights-of-ways, and dredged material disposal areas, presently estimated at $475,000; provide levees and spillways for disposal areas, presently estimated at $5,200,000; modify or relocate utilities, road, and other facilities, except railroad bridges, where necessary in the construction of the project, presently estimated at $2,355,000; pay 25 percent of the cost allocation to navigation during construction, presently estimated at $7,600,000; and pay an additional 10 percent of the costs allocated to navigation within a period of 30 years following completion if not off-set by credit allowed for lands, easements, rights-of-way, relocations and dredged material disposal areas.

Fiscal Year 1990 funds are being used to complete the General Design Memorandum which is scheduled for completion in March 1990 and to initiate plans and specifications. Fiscal Year 1991 funds will be used for completion of preconstruction engineering and design in June 1991.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Channel to Victoria	675,000	234,000	257,000	184,000	0

The project is located along and near the Guadalupe River from the Gulf Intracoastal Waterway to the City of Victoria in Victoria County, Texas. Over three million tons of commerce, consisting primarily of sand and gravel, petroleum products, and industrial chemicals currently move on the Channel to Victoria each year. All of this commerce originates at, or is shipped to ports which are served by the Gulf Intracoastal Waterway, a shallow draft navigation channel maintained at a depth of 12 feet and width of 125 feet. The feasibility report was approved by the Board of Rivers and Harbors in March 1986 and was sent to the Assistant Secretary of the Army (Civil Works) on 15 September 1987. The recommended project, estimated to cost $26.9 million based on October 1989 price levels with inflation through the construction period, consists of enlarging the existing Channel to Victoria from a depth of 9 feet and width of 100 feet to a depth of 12 feet and a width of 125 feet, the same dimensions as the Gulf Intracoastal Waterway, with disposal of the dredged materials in upland areas. In addition, the plan includes a 60-acre confined disposal area in San Antonio Bay which would be developed as a bird rookery, and creation of additional marsh along the landlocked reach of the channel. The average annual benefits amount to $2.9 million, all navigation. The benefit-cost ratio is 1.2 to 1 at 8-3/8 percent interest based on 1984 price levels.

The project was authorized by the Water Resources Development Act of 1988. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, rights-of-way, and disposal areas, presently estimated at $3,020,000; provide levees and spillways for disposal areas, presently estimated at $5,310,000; bear all cost of operation and maintenance of levees and spillways for disposal areas currently estimated at $101,000 annually; share the cost of improvements to a highway bridge fender system presently estimated at $120,000; pay 10 percent of the costs allocated to shallow-draft navigation, presently estimated at $1,830,000; and pay an additional 10 percent of the costs of the general navigation features within a period of 30 years following completion if not offset by credit allowed for lands, easements and rights-of-way, relocations and disposal areas.

Fiscal Year 1990 funds will be used to complete the General Design Memorandum in September 1990. Fiscal Year 1991 funds will be used to complete preconstruction engineering and design in March 1991.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Houston-Galveston Navigation Channels	6,900,000	0	428,000	1,100,000	5,372,000

Houston and Galveston Channels are located in the Galveston Bay system which is the largest estuarine system on the Texas Coast. The channels provide access to the principal ports of Houston and Galveston. The existing project provides 40-foot depth channels to Galveston, and to Houston as far as the Clinton Island Turning Basin and a 36-foot depth to the main Houston turning basin. The principal commodities moved on the Galveston Channel are cotton, grain, and sulfur. The principal commodities moved on the Houston Ship Channel are petroleum, chemicals, ores, grain, cotton, machinery, and general cargo. Total commerce moved on both channels in 1987 was about 121 million tons. The plan of improvement for Houston Ship Channel provides for a 50-foot deep by 600-foot wide channel to the Shell Oil Company Docks near Boggy Bayou in Houston with additional widening up to the Clinton Island turning basin. The plan of improvement for Galveston Channel provides for a 50-foot deep by 450-foot wide channel within the existing 1,100 to 1,125 foot channel.

The plan of improvement for Galveston Harbor Channel reflects the deepening of the existing 40 feet deep by 800 feet wide Galveston Harbor Channel to 50-52 feet deep over its 10.5 mile length. Detailed engineering studies must also address the need for deepening and extending the Galveston Entrance Channel about 12.5 miles to the 52-foot bottom contour in the Gulf of Mexico along the existing alignment. This portion of the project was authorized by the Water Resources Development Act of 1986 under the Texas City Channel, 50-foot project. The total cost of including the entrance channel based on October 1989 price levels with inflation throughout the construction period is estimated at $104.0 million. The total project cost for the Houston-Galveston Channels is estimated at $633.3 million based on October 1989 price levels with inflation through the construction period. The average annual benefits resulting from transportation savings from using larger or more efficient vessels, reduction in vessel casualties, and reduction of vessel delays are estimated at $56,436,000. The benefit-to-cost ratio is 1.9 to 1 at 8 5/8 percent interest rate based on 1988 prices.

The total cost of including the entrance channel is estimated at $104.0 million in accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to pay a portion of the cost of deepening and widening the channels, presently estimated at $94,800,000; pay the cost of preparing disposal areas, presently estimated at $23,200,000; pay the cost of deepening berthing areas, presently estimated at $7,100,000; modify or relocate pipelines, docks and facilities, and provide associated lands, easements and rights-of-way, where necessary in the construction of the project, presently estimated at $99,600,000; provide a portion of the cost of measures necessary to mitigate the project's adverse environmental impacts, presently estimated at $9,900,000; and pay a portion of the costs of operation and maintenance of the project.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Houston-Galveston Navigation Channels (Continued)					
Cost sharing for the entrance channel will require local interests to provide 25 percent of the cost of construction to a depth of 45 feet and 50 percent of the cost of construction for depths exceeding 45 feet. This cost is presently estimated at $41,600,000.					
Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design studies. Fiscal Year 1991 funds will be used to continue these studies. Preconstruction engineering and design is scheduled for completion in September 1994.					
SUBTOTAL NAVIGATION	9,625,000	1,327,000	1,427,000	1,499,000	5,372,000

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

b. Flood Control: The amount of $5,627,000 is requested for completion of fifteen PED activities and complete two activities.

Colorado

Alamosa	580,000	0	114,000	240,000	226,000

The project is located along the Rio Grande within the community of Alamosa, Colorado, about 34 miles north of the Colorado-New Mexico border. From its source, unit it reaches Alamosa, the river drains approximately 1,710 square miles. The current channel capacity of the Rio Grande within the study area is approximately 4,400 cubic feet per second. While the extent of damages are unknown, in 1884 and 1921 flood flows on the Rio Grande within the area were calculated at 20,000 and 18,000 cubic feet per second, respectively. Average annual damages within the Alamosa study area have been estimated at $1.12 million. The feasibility report will be completed in FY 1990. The recommended project, estimated to cost $8.0 million based on 1 October 1989 price levels with inflation through the construction period, includes recreational facilities and the construction of a levee system along the Rio Grande which will provide the 100-year level of protection to the community of Alamosa and the unincorporated area of East Alamosa. The average annual benefits amount to $955,000, with $937,000 for flood control and $18,000 for recreation. The benefit cost ratio is 1.4 to 1 at 8 7/8 percent based on 1989 price levels.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way presently estimated at $1,870,000; modify or relocate buildings, utilities, roads, and other facilities excluding railroad bridges, where necessary in the construction of the project, presently estimated at $40,000; pay one-half of the separable costs allocated to recreation, currently estimated at $100,000 and bear all costs of operation, maintenance, and replacement of recreation facilities, currently estimated at $2,000; pay five percent of the cost allocated to flood control, presently estimated at $390,000 and bear all cost of operation, maintenance, and replacement of flood control facilities presently estimated at $18,000 annually.

Fiscal Year 1990 funds are being used to initiate the General Design Memorandum. Fiscal Year 1991 funds will be used to continue work on the General Design Memorandum which is scheduled for completion in March 1992 and to initiate plans and specifications. Preconstruction Engineering and Design is scheduled for completion in March 1993.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Kansas					
Arkansas City	1,100,000	191,000	316,000	300,000	293,000

The Arkansas City, Kansas project is located at the confluence of the Arkansas and Walnut Rivers in southern Kansas, approximately four miles north of the Kansas-Oklahoma state line. The maximum flood of record, that of 1923 with a 50 year frequency, would have caused an estimated $47.8 million in damages at October 1989 prices and conditions of development. A feasibility report and Environmental Impact Statement were completed in May 1984. Over $450 million in improvements would be severely impacted by flood events greater than 45-year on the Arkansas River and 75-year on the Walnut River. The recommended project, estimated to cost $17.8 million based on October 1989 price levels with inflation through the construction period, consists of raising and extending the existing levee to provide an 8-mile long standard project flood protection levee. Approximately 1.9 miles of the lower Walnut River channel would be modified to a 350-foot bottom width with 3 to 1 side slopes. The most significant environmental impact would be the loss of 35 acres of bottomland and timber by constructing the channel modification. The average annual benefits amount to $3,555,000, all for flood control. The benefit-cost ratio is 2.1 to 1 at 8-7/8 percent, based on 1984 price levels.

The project was authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way, presently estimated at $1,125,000 modify or relocate buildings, utilities, roads, and other facilities, except railroad bridges, where necessary in the construction of the project, presently estimated at $575,000, pay 15.2 percent of the cost allocated to flood control, presently estimated at $2,700,000, to bring the total non-Federal share of flood control cost to 25 percent, and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $280,000 annually.

A Section 215 Agreement (Flood Control Act of 1968) was signed in October 1988. The city has since constructed improvements along a canal (creek) involved in the proposed Federal project. Credit up to $300,000 may be allowed for the work which negated projected induced damages of the project's levee improvements. Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used for continuation of preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in September 1992.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Kansas (Continued)					
Upper Little Arkansas River Watershed	1,440,000	584,000	595,000	210,000	51,000

The Upper Little Arkansas River Watershed lies principally within McPherson, Rice and Reno counties northwest of Wichita in central Kansas. The standard project flood plain covers 65,000 acres along the main stem of the Little Arkansas River and tributaries. The maximum flood of record, that of October 1974, would have caused an estimated $15.7 damages to the project at October 1989 prices and condition of development. A feasibility report was completed in October 1981 and transmitted to the Assistant Secretary of the Army (Civil Works) 14 March 1984. The recommended project, estimated to cost $14.8 million based on October 1989 price levels with inflation through the construction period, consists of a system of 18 small dams designed for 25-year flood control storage and 100-year sediment accumulation which will provide both urban and rural flood protection. The average annual benefits amount to $1,147,000, all for flood control. The benefit-cost ratio is 1.10 to 1 at 8-7/8 percent, based on 1981 price levels.

The project was authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way, presently estimated at $1,779,000; modify or relocate buildings, utilities, roads, and other facilities, except railroads bridges, where necessary in the construction of the project, presently estimated at $421,000; pay 9.6 percent of the cost allocated to flood control to bring the total non-federal share of flood control costs to 25 percent, presently estimated at $1,500,000; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $58,300 annually. In a letter, dated 25 September 1989 continued Great interest has been expressed by the Local Sponsor, The Upper Little Arkansas River Watershed District No. 95.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used for continuation of preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in April 1992.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Kansas (Continued)					
Winfield	640,000	0	171,000	150,000	319,000

The Winfield, Kansas Local Protection Project is located on Walnut River and Timber Creek at Winfield in south central Kansas. The River and Creek have drainage areas of 1,840 and 158 square miles, respectively. The project was authorized for construction by the Flood Control Act of 1965, Section 204, along with Towanda Lake, El Dorado Lake, and Douglass Lake in the basin. Construction of El Dorado Lake has been completed. Towanda Lake was deauthorized by the Water Resources Development Act of 1986. The Douglass Lake Project investigations indicate no Federal interest and studies have been discontinued. The maximum flood of record at Winfield occurred in April 1944 and resulted in the loss of 5 lives. That flood would have caused an estimated $15.9 million in damages to the city of Winfield using October 1989 prices. The existing local levee system, improved by the city in 1986, provides 70-year flood protection. About 70 percent of the residents live in the flood plain. The continued risk of flooding prompted the city to request further studies. A draft General Reevaluation Report, completed in February 1988, recommended extending and raising the existing levee to provide 200-year flood protection. The estimated cost of the project is $6.5 million based on October 1989 price levels with inflation through the construction period. The average annual benefits are $965,000 for flood control. The benefit to cost ratio is 1.6 to 1 at 8-7/8 percent, based on 1987 price levels.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way, presently estimated at $740,000; modify or relocate utilities, roads, and other facilities, except railroad bridges, where necessary in the construction of the project, presently estimated at $1,360,000; pay 5 percent of the cost allocated to flood control, presently estimated at $300,000; and bear all costs of operation and maintenance and replacement of flood control facilities, presently estimated at $50,000 annually. The city has, by letter dated 9 March 1989, endorsed the continuation of preconstruction engineering and design, and the city is aware of its cost sharing requirements.

In accordance with the provisions of a Section 215 agreement (Flood Control Act of 1968), signed October 1988, the city would receive cash credit for their work.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used for continuation of preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in May 1994.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
New Mexico					
Rio Grande Floodway, San Acacia to Bosque del Apache Unit	1,510,000	990,000	257,000	263,000	0

The project, located along the Rio Grande, extends from the upper end of the low-flow conveyance channel at the San Acacia diversion works to the head of Elephant Butte Reservoir. In September 1929, area storms produced a peak discharge of 60,000 c.f.s. on the Rio Grande at the San Acacia gage. Irrigation and transportation facilities were either disrupted or destroyed. Over 90 percent of the irrigated farmlands in a 60-mile reach of the Rio Grande were severely damaged, and the original villages of San Acacia, San Antonio, and San Marcial were destroyed. The Rio Grande low-flow conveyance channel, built by the U.S. Bureau of Reclamation in 1961, is the primary damageable property in the project area. Cost to construct the channel at October 1989 price levels would be $79,570,000. The U.S. Bureau of Reclamation estimates that following a flood severe enough to breach the spoil-bank levee separating the low-flow conveyance channel from the adjacent floodway, the low-flow conveyance channel would be obliterated and out of service for at least five years. As much as 455,000 acre-feet of water would be lost over such a five-year period, with an economic value of almost $76,400,000. Damages to residential properties and transportation facilities, mostly in the Socorro area, would exceed $46,700,000 under existing conditions. Standard Project Flood damages would total $236,600,000. The recommended project, estimated to cost $39.6 million based on 1 October 1989 price levels with inflation through the construction period, would include the complete removal and replacement of the existing spoil bank levee used to separate the Rio Grande low-flow conveyance channel from the cleared floodway, a distance of about 58 miles. The average annual benefits amount to $12.5 million, all for flood damage prevention. The benefit cost ratio is 3.7 to 1 at 8-7/8 percent based on 1984 price levels.

The project is authorized for construction by the Flood Control Acts of 1948 and 1950. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way presently estimated at $0; modify or relocate buildings, utilities, roads, and other facilities, excluding railroad bridges, where necessary in the construction of the project, presently estimated at $0; pay twenty-five percent of the costs allocated to flood control, presently estimated at $9,900,000 and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $158,800 annually.

Fiscal Year 1990 funds are being used to complete the General Design Memorandum in March 1990 and to prepare the Feature Design Memorandum which is scheduled for completion in January 1991. Fiscal Year 1991 funds will be used to initiate and complete the Plans and Specifications. Preconstruction engineering and design is scheduled for completion in September 1991.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
New Mexico (Continued)					
Roswell, Pecos River	1,000,000	0	0	460,000	540,000

Roswell is located in southeastern New Mexico within the Pecos River watershed. Tributary watersheds in the vicinity of Roswell include the Rio Hondo, North Spring River, and Berrendo Creek, all of which are right-bank tributaries to the Pecos River. These tributaries have a total drainage area of approximately 570 square miles below Two Rivers Dam located 20 miles upstream of Roswell. The value of property within this uncontrolled drainage area is $590 million at 1 October 1989 price levels. Average annual damages for these watersheds have been estimated at $3.7 million. The feasibility report is scheduled to be completed by September 1990. The project, recommended by the Reconnaissance Report, completed in May 1988, consists of 5 miles of channel improvement to the Rio Hondo, estimated to cost $25.2 million based on October 1989 price levels with inflation through the construction period, which will provide the 100-year level of protection to the community of Roswell. Average annual benefits are $2.53 million all flood control. The benefit cost ratio is 1.3 to 1 at 8-7/8 percent, based on 1987 price levels.

This project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way presently estimated at $1,338,000; modify or relocate buildings, utilities, roads, and other facilities, excluding railroad bridges, where necessary in the construction of the project, presently estimated at $82,000; pay 19.3 percent of the cost allocated to flood control, presently estimated at $4,880,000 and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $23,000 annually.

Fiscal Year 1991 funds will be used to initiate work on the General Design Memorandum which is scheduled for completion in January 1992. Preconstruction Engineering and Design is scheduled for completion in August 1993.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Oklahoma					
Fry Creeks, Bixby	1,400,000	847,000	385,000	168,000	0

Fry Creeks 1 and 2 are located in the northern part of the city of Bixby, Tulsa County, Oklahoma. The maximum flood of record, that of June 1974, would have caused an estimated $2.1 million damages using 1 October 1989 price levels and conditions of development. A feasibility report was completed in April 1982. The authorized project includes enlarging both Fry Creeks, diverting Fry Creek 1 into Fry Creek 2, and then diverting the combined creeks to the Arkansas River. The modified channels would have a total length of 4.3 miles, bottom widths of 60 to 240 feet, and depths of 6 to 12 feet. Four bridges would be constructed, and 20 acres of land would be acquired for mitigation of fish and wildlife losses. The project would provide protection from the 100-year flood for about 1,100 acres of land, 400 residences, 22 businesses, 3 churches and a fire station, as well as streets, utilities, farm equipment, and crops. The estimated cost of the project is $17.3 million based on October 1989 price levels with inflation through the construction period. Estimated average annual benefits are $1,278,500, all for flood control. The benefit-cost ratio is 1.10 to 1 at 8-7/8 percent, based on 1981 price levels.

The project was authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way, presently estimated at $1,174,000; modify or relocate utilities, roads, and other facilities, except railroad bridges, where necessary in the construction of the project, presently estimated at $3,326,000; pay 5 percent of the cost allocated to flood control, presently estimated at $900,000; and bear all costs of operation and maintenance and replacement of flood control facilities, presently estimated at $13,000 annually.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used for completion of preconstruction engineering and design in January 1991.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas					
Abilene, Brazos River Basin	3,770,000	0	0	258,000	3,512,000

The project is located on Elm Creek in the vicinity of Abilene, Taylor County, Texas. Elm Creek originates southwest of Abilene, Texas, and flows northeasterly through Abilene to its confluence with the Clear Fork of the Brazos River, which is a tributary of the Brazos River. The watershed of Elm Creek has a drainage area of 485 square miles, of which about 355 square miles are upstream of the city of Abilene, an overall length of about 52 miles, and a maximum width of 23 miles. This perched stream has insufficient channel capacity to handle a 15-year storm event and excess flood waters spill over into Little Elm and Cat Claw Creeks, further compounding these streams' flood control problems. Abilene had an estimated 1984 population of 107,556 and has experienced loss of physical property and injuries to flood victims as a result of flooding along Elm and Cat Claw Creeks. Thirteen notable storms produced flooding and resultant property damage and injuries since 1972. As the upper watersheds of Elm and Cat Claw Creeks are further developed with industrial parks and residential areas, peak flows on these creeks will increase and flood problems will become more frequent and critical in the lower portion of these watersheds. The most recent major flood occurred from 12-14 October 1981 causing losses of more than $6 million ($7.7 million, 1 October 1989 price levels) and damaged over 450 homes and an unknown number of businesses. The Reconnaissance Report was completed in September 1988 and identified a 100-year detention dam on Elm Creek as a feasible plan. Studies to date now indicate a combination of detention on Elm Creek and diversion to Little Elm Creek to be the most feasible plan. This plan would control about 68 percent of the total watershed area. The total first cost is estimated to be $66 million, based on 1 October 1989 price levels with inflation through the construction period. Of this amount, 26 percent, or approximately $17.4 million, would be the responsibility of the city of Abilene, Texas, the local sponsor. Average annual benefits amount to $12 million, all for flood control. The benefit cost ratio is 1.7 to 1 at 8 7/8 percent based on 1989 price levels. The cost-shared Feasibility Report is scheduled for completion in April 1991.

The project is not authorized for construction.

Fiscal Year 1991 funds will be used for initiation of preconstruction engineering and design. The preconstruction engineering and design phase is scheduled for completion in November 1996.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Beals Creek, Big Spring	1,010,000	576,000	191,000	145,000	98,000

Big Spring, Texas, is the county seat of Howard County. The main stem of Beals Creek transverses the northern portion of the city. The drainage area of Beals Creek includes 494 square miles of contributing drainage area. Beals Creek is the only stream to convey flood flows originating above Big Spring, and provides drainage for 75 percent of the city's developed area. The main stem channel has a major capacity of only about 200 cubic feet per second (cfs). The 50-year flow is estimated to be 10,000 cfs. Major floods have occurred in Big Spring since 1890, with the most recent being in 1986 and 1987. A survey report, prepared in May 1970, recommended a channel project approximately 5.6 miles long to contain the 50-year flood at an estimated cost of $2,526,000 (1 July 1969 price levels). Phase I Advance Engineering and Design studies were initiated in 1976. A Notice of Study Findings, published in February 1978, reported the authorized plan was no longer economically feasible and subsequently all effort on the project was stopped. The current updated cost of this plan is $10,400,000 based on 1 October 1989 price levels with inflation through the construction period. Average annual benefits are $335,700, based on 1 October 1989 price levels all for flood control. The benefit cost ratio is 0.62 to 1 at 8 7/8 percent based on 1979 price levels.

On July 1, 1987, the city of Big Spring requested the Corps to reevaluate the authorized plan to determine if a smaller project might be feasible. The city estimated flood damages of $2.75 million occurred in September 1986 flooding, caused primarily by inadequate channel capacity of Beals Creek. Additional flooding occurred in May and June 1987. The city also noted a major spillway design modification had been made in an upstream non-Federal reservoir which effectively increased flooding in the city. Losses were reported to residential, commercial, and transportation facilities. Based on this information a reevaluation study was initiated in Fiscal Year 1988 which will address these flooding problems. The current project authorization is still valid. The city of Big Spring continues to be the local sponsor.

Current studies reveal that, of the alternatives investigated, a 20 foot bottom width channel is the most feasible plan and is identified as the National Economic Development plan. This plan is also the locally preferred plan. The plan would provide a channel 8,000 feet long with a 20 foot bottom width. The total cost of the plan is $4,196,900 based on 1 October 1989 price levels with inflation through the construction period.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$

Texas (Continued)

Beals Creek, Big Spring (Continued)

The project was authorized for construction in May 1971 under authority of Section 201 of the 1965 Flood Control Act. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way presently estimated at $371,600; modify or relocate buildings, utilities, roads, and other facilities excluding railroads bridges, where necessary in the construction of the project, presently estimated at $360,700; pay in cash five percent of the cost allocated to flood control, presently estimated at $209,900; pay an additional $107,000 in cash to cover other construction costs, and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $18,500 annually.

Fiscal Year 1990 funds are being utilized to complete the reevaluation report and initiate work on the General Design Memorandum, including updating economic studies. Fiscal Year 1991 funds will be used to complete work on the General Design Memorandum, and initiate the plans and specifications. Preconstruction engineering and design is scheduled for completion in March 1992.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Brays Bayou, Houston	3,100,000	0	214,000	900,000	1,986,000

Brays Bayou drains about 137 square miles in the south-central portion of the Buffalo Bayou watershed. The area is subject to rainstorms throughout the year and urban flooding is a common occurrence. About 53,400 homes and businesses are currently subject to flooding by the Standard Project Flood, and about 25,000 of these properties would be subject to flooding by a 100-year frequency flood. On an average annual basis, stream flooding could cause nearly $46 million in damages per year to existing properties. Brays Bayou is one feature of a comprehensive plan for the Buffalo Bayou watershed which has six separate elements providing flood control on Carpenters, Greens, Halls, Hunting, Little White Oak, and Brays Bayous. The recommended plan of improvement for Brays Bayou includes 3 miles of stream improvements, 3 flood detention basins, 7 miles of stream diversion and modification of obstructive bridge and utility crossings. The plan would reduce the existing 100-year frequency floodplain area along Brays Bayou by about 97 percent. Average annual flood damages would be reduced by about 95 percent. Aesthetic vegetation would be included. Recreation features including trails, picnic facilities, sports fields, comfort stations and parking areas are included. The total first cost of the recommended plan, based on October 1989 price levels with inflation through the construction period, is estimated at $330.0 million. The average annual benefits are estimated at $84,820,000 for flood control, and $1,664,000 for recreation. The benefit-cost ratio is 3.1 to 1 at 8 5/8 percent interest based on 1988 price levels.

The project is not authorized. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, presently estimated at $146,900,000; pay one-half of the separable costs allocated to recreation, presently estimated at $1,740,000, and bear all costs of operation, maintenance and replacement of recreation facilities presently estimated at $82,300 annually, and pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 50 percent, presently estimated at $16,360,000, and bear all costs of operation, maintenance and replacement of flood control facilities currently estimated at $834,600 annually.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design studies. Preconstruction engineering and design is scheduled for completion in March 1994.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Falfurrias	575,000	0	171,000	200,000	204,000

The city of Falfurrias is located near the confluence of Palo Blanco and Cibolo Creeks, intermittent streams that drain a 600-square-mile area in south Texas. The streams are subject to periodic high flows from intense thunderstorms and rainfall associated with hurricanes and other tropical disturbances. Falfurrias has been flooded 12 times since 1909, and the flood of record in 1967 caused over $9 million (October 1989 prices) in damages to more than 1,200 homes. The plan of improvement is a levee and pilot channel to divert Standard Project Flood (SPF) flows in Palo Blanco and Cibolo Creeks around the west side of Falfurrias to Baluarte Creek. Major plan elements include a 5.6-mile long diversion levee; a 1.8-mile long pilot channel; a flowage easement of 11,000 acres of land subject to overflows from the pilot channel; and a 0.8-mile long ring levee around the sewage treatment plant. Estimated total project cost, based on October 1989 price levels with inflation through the construction period is $37,800,000. The average annual benefits are estimated at $10,039,000, all flood damage prevention. The benefit-to-cost ratio is 3.0 to 1 at 8 5/8 percent interest rate based on 1987 prices.

The project was authorized by the Water Resources Development Act of 1988. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to pay 5 percent of the cost of the project in cash, presently estimated at $1,890,000; provide lands, easements and rights-of-way, presently estimated at $16,200,000; provide a portion of the cost of modifying or relocating buildings, pipelines, utilities, roads or other facilities, (except railroad bridges and Federal utilities), where necessary in the construction of the project, presently estimated at $810,000; and bear all costs of operation, maintenance and replacement of flood control facilities currently estimated at $193,000 annually.

Fiscal year 1990 funds are being used to initiate preconstruction engineering and design studies. Funds requested for Fiscal Year 1991 would be used to continue preconstruction engineering and design studies, including preparation of the General Design Memorandum which is scheduled to be completed in March 1991. Preconstruction engineering and design is scheduled for completion in September 1992.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Five Mile Creek, Dallas	1,285,000	25,000	124,000	135,000	1,001,000

Five Mile Creek is located in the southwestern portion of Dallas County. Starting in Duncanville, it flows north, and then east through south Dallas, entering the Trinity River just north of Hutchins, Texas. The total drainage area of the watershed above U.S. Highway 75 is about 55 square miles. Most of the watershed is urbanized. A flooding problem exists along the main stem of the stream and some of its many tributaries. Prior to the establishment of the United States Geological Survey gage network in the watershed, records were lacking, but it is known that significant floods occurred in 1942, 1946, 1957, 1969, 1970, 1973, and most recently in May and June 1989. In the May 1989 flooding, over 100 homes were flooded and one death occurred. This event was estimated to be a 10 year rainfall, however the ground was saturated and this rain produced a 25 year runoff. Damage was estimated to be in excess of $7 million (October 1989 prices). An appraisal report was completed in December 1983 under the authority of Section 205 of the Flood Control Act of 1948, as amended. It concluded that more detailed studies were needed but would be beyond the scope of the Section 205 program. A preliminary plan has a first cost of $30,900,000 based on 1 October 1989 price levels with inflation through the construction period. The average annual benefits are estimated to be $2,788,000, all for flood control. The benefit-cost ratio is 1.11 to 1 at 8 7/8 percent based on 1989 price levels.

The project is only authorized for planning, engineering, and design by the Water Resources Development Act of 1986. The estimated cost of the feasibility phase is $610,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. The cost of the design phase is $980,000 which will be cost shared by Federal and non-Federal interests on the same basis as the purposes of the project after initiation of construction. A letter, dated June 12, 1989, from the city of Dallas, the local sponsor, indicated their willingness to cost share in a feasibility study. Negotiations of the cost sharing agreement are underway.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of Preconstruction Engineering and Design. Fiscal Year 1991 funds will be used to complete the feasibility study. Planning, engineering and design is scheduled for completion in February 1995.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Greens Bayou, Houston	2,400,000	0	214,000	723,000	1,463,000

Greens Bayou, excluding its tributary of Halls Bayou, drains about 154 square miles in the north central area of the Buffalo Bayou watershed. The area is subject to rainstorms throughout the year and urban flooding is a common occurrence. About 10,967 homes and businesses are currently subject to flooding by the Standard Project Flood, and about 7,100 of these properties would be subject to flooding by a 100-year frequency flood. On an average annual basis, stream flooding could cause about $17.8 million in damages per year to existing properties. Greens Bayou is one feature of a comprehensive flood control plan for the Buffalo Bayou watershed which has six separate elements providing flood control on Carpenters, Greens, Halls, Hunting, Little White Oak, and Brays Bayous. Plan features for Greens Bayou include 25 miles of stream enlargement, 14 miles of stream clearing, acquisition of flood-prone properties, and 4 flood detention basins. The proposed project would provide about 40-year flood protection to existing properties. The project would reduce average annual damages by about 89.3 percent. Aesthetic vegetation would be included to improve environmental quality. Mitigation would be required to compensate for the loss of 48 acres of riparian forest fish and wildlife habitat and for 194 acres of upland forest wildlife habitat. Recreation features incorporated into the plan include trails, picnic facilities, sports fields, canoe launching ramps, comfort stations and parking areas. The total first cost of the recommended plan, based on October 1989 price levels with inflation through the construction period, is estimated at $149.1 million. The average annual benefits are estimated at $31,665,000 for flood control, and $1,684,600 for recreation. The benefit-cost ratio is 2.7 to 1 at 8 7/8 percent interest based on 1988 price levels.

The project is not authorized. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, presently estimated at $30,800,000; modify, or relocate buildings, pipelines, utilities, roads, and other facilities, except railroad bridges, where necessary for the construction of the project, presently estimated at $7,200,000; pay one-half of the separable costs allocated to recreation, presently estimated at $2,000,000, and bear all costs of operation, maintenance and replacement of recreation facilities presently estimated at $98,200 annually, and pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, presently estimated at $8,100,000, and bear all costs of operation, maintenance and replacement of flood control facilities currently estimated at $466,800 annually.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design studies. Preconstruction engineering and design is scheduled for completion in December 1993.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Lower Rio Grande Basin, Arroyo Colorado	800,000	0	124,000	300,000	376,000

The Arroyo Colorado feature of the Lower Rio Grande Basin project is located in Hidalgo and Cameron Counties, Texas. Existing drainage is extremely limited throughout the Lower Rio Grande Basin. Floodwaters are impeded by flat topography, roads, railroads, irrigation canals, and inadequate outlets. Floodwaters damage homes, businesses, and crops; block transportation; interrupt business, tourism, school attendance, and utility services; and increase rescue and repair activities. Under existing conditions the average annual damage from urban flooding alone is estimated at $9,975,000 (1 October 89 prices). Widespread flooding from Hurricane Beulah (1967) further emphasizes the vulnerability of the area and the seriousness of the problem. This storm, one of the largest in the history of the area, dumped more than 30 inches of rain in the Valley and caused almost $105 million (1 October 89 price levels) in damages in Cameron, Hidalgo, and Willacy Counties. Numerous cities and communities and almost 500,000 acres of agricultural land were flooded by surface runoff or sheet flow. The Phase I General Design Memorandum was approved by the Board of Engineers for Rivers and Harbors in April 1983 and submitted to the Assistant Secretary of the Army (Civil Works) in February 1986. The Arroyo Colorado feature of the project, estimated to cost $5.9 million based on October 1989 prices with inflation through construction, would provide an improved outlet channel for removal of flood waters from rural areas of Hidalgo County located between the Rio Grande and U. S. Highway 83. The average annual benefits for this feature amount to $1,345,600, all flood control. The benefit-to-cost ratio is 2.6 to 1 at 8 7/8 percent based on 1989 prices.

The project was authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, presently estimated at $700,000; pay 14 percent of the first costs allocated to flood control, presently estimated at $800,000; and bear all costs of operation, maintenance, and replacement of flood control facilities currently estimated at $16,000 annually. The flooding problem is so acute that local interests have proceeded with construction of one element of this project feature, a gated floodwater diversion structure in a divisor dike separating the Arroyo Colorado from the North Floodway. The remaining elements are needed to complete the floodwater outlet and to realize the full potential of the locally-constructed element.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Funds requested for FY 1991 will be used to continue preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in March 1993.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Lower Rio Grande Basin, South Main Channel	2,300,000	0	43,000	75,000	2,182,000

The South Main Channel feature of the Lower Rio Grande Basin project is located in Hidalgo and Willacy Counties, Texas. Existing drainage is extremely limited throughout the Lower Rio Grande Basin. Floodwaters are impeded by flat topography, roads, railroads, irrigation canals, and inadequate outlets. Floodwaters damage homes, businesses, and crops; block transportation; interrupt business, tourism, school attendance, and utility services; and increase rescue and repair activities. Under existing conditions the average annual damage from urban flooding alone is estimated at $9,975,000 (1 October 89 prices). Widespread flooding from Hurricane Beulah (1967) further emphasizes the vulnerability of the area and the seriousness of the problem. This storm, one of the largest in the history of the area, dumped more than 30 inches of rain in the Valley and caused almost $105 million (1 October 89 price levels) in damages in Cameron, Hidalgo, and Willacy Counties. Numerous cities and communities and almost 500,000 acres of agricultural land were flooded by surface runoff or sheet flow. The Phase I General Design Memorandum was approved by the Board of Engineers for Rivers and Harbors in April 1983 and submitted to the Assistant Secretary of the Army (Civil Works) in February 1986. The South Main Channel feature of the project, estimated to cost $192.0 million based on October 1989 prices with inflation through the construction period, consists of channel improvements to: (1) provide flood protection for the cities of McAllen, Edinburg, Edcouch, La Villa and Lyford; and (2) provide protection for rural areas of Hidalgo and Willacy Counties north of U. S. Highway 83. The average annual benefits for this feature amount to $18,346,100, all for flood control. The benefit-to-cost ratio is 1.5 to 1 at 8 7/8 percent based on 1989 prices.

The project was authorized for construction by the Water Resources Development Act of 1986. In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, and rights-of-way, presently estimated at $33,000,000; modify or relocate buildings, pipelines, utilities, roads and other facilities, except railroad bridges and Federal utilities, where necessary in the construction of the project, presently estimated at $31,000,000; pay 7 percent of the first costs allocated to flood control, presently estimated at $13,000,000; and bear all costs of operation, maintenance, and replacement of flood control facilities currently estimated at $455,000 annually.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. FY 1991 funds will be used to continue preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in March 1996.

Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
McGrath Creek, Wichita Falls	900,000	0	286,000	300,000	314,000

McGrath Creek is a tributary of Holliday Creek, located in the north-central portion of Texas, in the city of Wichita Falls. Major flooding occurred in Wichita Falls on 12-14 May 1982, resulting in city wide damages. Damages to development along McGrath Creek during this flood were in excess of $27.2 million at October 1989 prices. The Chief of Engineer's report, dated 25 March 1988, recommended construction authorization. The final Environmental Impact Statement was filed with the Environmental Protection Agency on 22 January 1988. The recommended project, estimated to cost $10.9 million based on October 1989 price levels with inflation through the construction period, includes a new spillway at Sikes Lake and a 0.7-mile rectangular concrete lined channel along McGrath Creek between Sikes Lake and the confluence with Holliday Creek. The plan would provide protection against the 100 year frequency flood along McGrath Creek downstream of Sikes Lake. The average annual benefits amount to $1,403,000, all for flood control. The benefit-cost ratio is 1.5 to 1 at 8-7/8 percent, based on 1985 price levels.

The project was authorized for construction by the Water Resources Development Act of 1988. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way, presently estimated at $630,000; modify or relocate utilities, roads, and other facilities, except railroad bridges, where necessary in the construction of the project, presently estimated at $1,170,000; pay 8.2 percent of the cost allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, presently estimated at $900,000; and bear all costs of operation, maintenance and replacement of flood control facilities, presently estimated at $67,000 annually.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used for continuation of preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in September 1992.

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Study	Total Estimated Federal Cost	Allocation Prior To FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional To Complete After FY 1991
	$	$	$	$	$
Texas (Continued)					
Shoal Creek, Austin	2,420,000	0	190,000	800,000	1,430,000

Shoal Creek is located in central Texas in the west central part of the city of Austin. Flow in the watershed traverses generally south into the Colorado River. The watershed has a drainage area of 13.2 square miles. The creek flows through a highly urbanized area of Austin. A flooding problem exists along Shoal Creek and Hancock Creek, its major tributary. Flash floods were recorded in April 1915, November 1974, April 1975, and May 1981. The most devastation was caused by the May 24-25, 1981 storm. This storm produced rainfall rates of 4.5 to 6 inches per hour. This event was estimated to be a 100 year event in the upper portion of the watershed and a 50 year event near the downtown area. Five deaths occurred along Shoal Creek during this flood. An initial evaluation of the problem was completed in 1981 under authority of Section 205 of the Flood Control Act of 1948, as amended. It concluded more detailed studies were needed but were beyond the scope of the Section 205 Authority. Feasibility studies were initiated under the Colorado River and Tributaries Authority. The recommended plan consists of 7,600 feet of 35-50 foot trapezoidal channel in the upper portion of the watershed and two 14-foot diameter tunnel diversions. One tunnel has an intake at Northwest Park just downstream of Greenlawn Parkway and an outlet on Lake Austin near Bull Creek. The other diversion would be located just downstream of 24th Street with an outlet on Town Lake near West Lynn Street. The plan has a first cost of $88,000,000, based on 1 October 1989 price levels with inflation through the construction period. The average annual benefits are estimated to be $10,555,500 for flood control. The benefit-cost ratio is 1.4 to 1 at 8-7/8 percent based on 1989 price levels.

The project is not authorized for construction. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements and rights-of-way presently estimated at $7,444,000; modify or relocate buildings, utilities, roads, and other facilities excluding railroad bridges, where necessary in the construction of the project, presently estimated at $3,886,000; pay five percent of the cost allocated to flood control, presently estimated at $3,700,000; pay $3,470,000 to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $30,400 annually.

The feasibility study is scheduled to be completed in May 1990 with carryover funds. Fiscal Year 1990 funds will be used to initiate the Design Memorandum which includes model studies of the both tunnels. Fiscal Year 1991 funds will be used to continue the Design Memorandum. Preconstruction engineering and design is scheduled for completion in September 1995.

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Study	Total Estimated Federal Cost $	Allocation Prior To FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional To Complete After FY 1991 $
SUBTOTAL FLOOD CONTROL	26,230,000	3,213,000	3,395,000	5,627,000	13,995,000
c. Shoreline Protection: None					
d. Multiple Purpose: None					
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED) Continuing	35,855,000	4,540,000	4,822,000	7,126,000	19,367,000
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED)	35,855,000	4,540,000	4,822,000	7,126,000	19,367,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	55,139,000	11,490,000	7,309,000	11,168,000	25,172,000

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APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Freeport Harbor, Texas (1970 Act) (Continuing)

LOCATION: The project is located in Brazoria County on the central coast of Texas, 47 miles southwest of Galveston Harbor Channel entrance and 72 miles northeast of Matagorda Ship Channel entrance.

DESCRIPTION: The project provides for deepening to 45 feet, realigning, and enlarging the entrance channel, jetty channel, main channel and turning basin; deepening the Brazos River Harbor channel and turning basin to 36 feet; relocation of north jetty and rehabilitation of the south jetty; minimum facilities for health and safety (parking areas, restrooms) at each jetty; and relocation of the U.S. Coast Guard Station.

AUTHORIZATION: River and Harbor Act of 1970 and the Supplemental Appropriations Act of 1985.

REMAINING BENEFIT - REMAINING COST RATIO: 9.0 to 1 at 8 1/8 percent.

TOTAL BENEFIT - COST RATIO: 5.2 to 1 at 8 1/8 percent.

INITIAL BENEFIT - COST RATIO: 5.7 to 1 at 8 1/8 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation approved in October 1979 at 1979 price levels.

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SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CofE)		$64,400,000		Entire Project	26	Sep 1993
Estimated Federal Cost (U.S. Coast Guard)		460,000				
Estimated Non-Federal Cost		31,200,000				
Cash Contributions	$21,300,000					
Other Costs	9,900,000					
Total Estimated Project Cost		$96,060,000				

Division: Southwestern District: Galveston Project: Freeport Harbor, Texas

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$18,860,000	
Conference Allowance for FY 1990	13,300,000	
Allocation for FY 1990	10,499,000 1/	
Allocations through FY 1990	$29,359,000	46
Allocation Requested for FY 1991	$11,000,000	63
Scheduled Balance to Complete After FY 1991	24,041,000	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects $1,283,000 reduction assigned as savings and slippage, $137,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,381,000 reprogrammed from the project.

PHYSICAL DATA

Channels:
- Outer Bar Channel - 47'x 400'x 3.0 miles
- Jetty Channel - 45'x 400'x 0.8 mile
- Channel to Brazosport T.B. - 45'x 400'x 1.2 miles
- Channel to Upper Basin - 45'x 375'x 1.4 miles
- Brazos Harbor Channel - 36'x 200'x 0.5 mile

Jetties:
- North Jetty Relocation - 4,200'
- North Jetty Shoreline Protection - 3,500'
- South Jetty - Rehabilitate existing jetty

Turning Basins:
- Brazosport T.B. - 45'x 1,000' (Diameter)
- Upper T.B. - 45'x 1,200' (Diameter)
- Quintana T.B. - 45'x 750' (Diameter)
- Brazos Harbor T.B. - 36'x 750' (Diameter)

Recreation Areas - 1 each
Relocation - Coast Guard Station

JUSTIFICATION: The narrow 200-foot-wide jetty channel, sharp curves at the inner end of the jetty channel and at the upper end of Brazosport turning basin, and limited maneuvering areas in the existing turning basins, all contribute to inadequate conditions for safe navigation by deep-draft traffic. Because of the hazards of these problem areas, deep-draft vessel movements are restricted to one-way traffic, with no passing or meeting in the channels inland from the jetty entrance. Strong cross winds and currents, and periods of fog or other adverse weather, may delay or prevent traffic from entering or leaving the jetty channel. When transiting the jetty and inside channels, vessels are operated at low or dead-slow speeds to minimize possible damages from collisions with berthed vessels or shore installations. When traveling at slow speeds, vessels sometime lose effective rudder control and strike the channel banks, which, in turn may cause the vessel to "shear", or change course slightly. Turning of vessels in turning basins is being accomplished only by slow and careful maneuvering and the assistance of harbor tugs. Enlargement of the turning basins is needed both for the existing traffic and for the larger vessels that will be used in the future. Tankers with drafts of 32 feet or greater are now using the

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JUSTIFICATION (Continued)

main channel and it is evident that the safe depth of 32 feet is frequently exceeded. Because of inadequate project depth at Freeport, vessels are often light-loaded and some of the large vessels will not call at Freeport because of the inadequate channel depth. The average annual benefits, based on October 1979 price levels, are as follows:

Annual Benefits	Amount
Navigation	$44,780,000
Recreation	288,000
Total	$45,068,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate dredging of Main Channel and Basin	$ 1,373,000
Initiate rehabilitation of South Jetty and extension of North Jetty	750,000
Initiate and complete Coast Guard Station Demolition and Removal	272,000
Complete dredging Entrance Channel	7,105,000
Complete dredging Jetty Channel	525,000
Engineering and Design	375,000
Supervision and Administration	600,000
Total	$11,000,000

COMPLETED OR REMAINING MODIFICATIONS: Work completed consists of a northeasterly jetty 7,700 feet long, a southwesterly jetty 6,640 feet long, an outer bar channel 38' x 200' x 16,000'; a jetty channel 36' x 200' x 4,400' ; a channel to the Brazosport turning basin 36' x 200'-350' x 6,351'; Brazosport turning basin 36' x 744'-800' x 667'; a channel to Upper Basin 36' x 350'-275' x 7,156'; and upper turning basin 36' x 600' x 600'; a channel to the Stauffer Chemical Plant 25' x 200' x 6,090'; Brazos Harbor Channel 30' x 200' x 2,690'; and the Brazos Harbor turning basin 30' x 525'-675' x 675'. The cost of this completed work is $1,973,755.

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NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Provide lands, easements, and rights-of-way and dredged material disposal areas, and bear all costs of operation, maintenance, and replacement of retaining works for dredged material.	$ 8,520,000	$75,000
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	570,000	
Pay one-half of the separable and joint costs allocated to recreation (including land) and bear all costs of operation, maintenance, and replacement of recreation facilities.	1,260,000	7,000
Pay 25 percent of the first costs allocated to deep-draft navigation during construction.	20,850,000	
Total Non-Federal Costs	$31,200,000	$82,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Local sponsor is Brazos River Harbor Navigation District. On 26 Jun 1986, the sponsor entered into a Local Cooperation Agreement to provide the necessary items of local cooperation. A modification to the Local Cooperation Agreement with the Brazos River Harbor Navigation District was executed on 19 March 1987.

The current non-Federal cost estimate of $31,200,000, which includes a cash contribution of $21,300,000, is a decrease of $2,508,000 from the non-Federal cost estimate of $33,708,000 noted in the Local Cooperation Agreement, which included a cash contribution of $23,401,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial committment.

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COMPARISION OF FEDERAL (CORPS OF ENGINEERS) COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $64,400,000 is an increase of $5,900,000 from the latest estimate ($58,500,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$1,757,000
Post Contract Award and Other Estimating Adjustments	4,143,000
Total	$5,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in March 1979.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1973 and were allocated in Fiscal Year 1974. Funds to initiate construction were appropriated by the Fiscal Year 1985 Supplemental Appropriations Act.

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APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Mouth of Colorado River, Texas (Continuing)

LOCATION: The project is located on the lower reach of the Colorado River in Matagorda County, Texas. The project extends from the mouth of the Colorado River at the Gulf of Mexico to the town of Matagorda, Texas.

DESCRIPTION: The navigation portion of the project will consist of two jetties; an entrance channel 15 feet deep and 200 feet wide, in the Gulf of Mexico; an impoundment basin adjacent to the east jetty; a navigation channel, 12 feet deep by 100 feet wide, in the present Colorado River channel and extending from the Gulf to the Gulf Intracoastal Waterway; and a harbor and turning basin, 12 feet deep by 350 feet wide and 1,450 feet long. The river diversion portion of the project will consist of a diversion channel 20 feet deep and 250 feet wide, an earth-fill diversion dam in the existing river channel, relocation of the upper reach of the 12-foot deep by 100-foot wide navigation channel, and closure of Tiger Island Channel with an earth-fill dam. Project also includes an oyster cultch to be placed to expand oyster productivity at one existing reef and to create one new reef. A public use area with recreational facilities will be provided adjacent to the east jetty. Recreational facilities consist of a parking area, picnic tables, and a jetty walkway to provide access across the submerged portion of the east jetty.

AUTHORIZATION: River and Harbor Act of 1968 and the Water Resources Development Act of 1986

REMAINING BENEFIT - REMAINING COST RATIO: A remaining benefit - remaining cost ratio is not applicable as the project is nearing completion.

TOTAL BENEFIT - COST RATIO: 6.5 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 3 1/4 percent (FY 1979).

BASIS OF BENEFIT - COST RATIO: Benefits are from the Post Authorization Change Notification Report approved in August 1982 at 1982 price levels.

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SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CofE)		$29,600,000		Entire Project	77	Dec 1992
Estimated Federal Cost (USCG)		23,000				
Estimated Non-Federal Cost		4,060,000				
Cash Contributions	$3,530,000					
Other Costs	530,000					
Total Estimated Project Cost		$33,683,000				
Allocations to 30 September 1989		$21,521,000				
Conference Allowance for FY 1990		6,200,000				
Allocation for FY 1990		5,579,000	1/			
Allocations through FY 1990		27,100,000	92			
Allocation Requested for FY 1991		1,000,000	95			
Scheduled Balance to Complete After FY 1991		1,500,000				
Unscheduled Balance to Complete after FY 1991		0				

1/ Reflects $598,000 reduction assigned as savings and slippage $64,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $41,000 reprogrammed to the project.

PHYSICAL DATA

Channels:
Entrance Channel - 15' x 200' x 3,500' miles
Navigation Channel - 12' x 100' x 6.5 miles
Diversion Channel - 20' x 250' x 3.1 miles and 18' x 125' x 1.7 miles
Turning Basin:
Matagorda Turning Basin-12' x 350' x 1,450'
Jetties:
East Jetty - 2,650' in length
West Jetty - 1,450' in length
Dams:
Tiger Island Channel Dam
Diversion Dam
Recreation Area - 1
Fish and Wildlife Facility-Oyster Cultch

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Division: Southwestern District: Galveston Project: Mouth of Colorado River, Texas

JUSTIFICATION: Benefits from construction of a dependable shallow-draft channel from the Gulf Intracoastal Waterway to the Gulf by way of the existing flood discharge channel would be derived from savings in transportation cost to commercial fishing boats and oil field service vessels operating in the area. The savings in travel distance per round-trip attributable to the proposed navigation improvement would be 36 miles. Recreational boating benefits would also be realized as the channel would provide access for recreational boats from inland waters to the Gulf. The existing channel is impassable much of the time and currently is not reliable. The Colorado River Channel is the only entrance from the Gulf to inland waters between Matagorda Ship Channel and Freeport Harbor for vessels seeking refuge from weather disturbances in the Gulf. The distance between the two entrance channels is about 72 miles and, on occasion, vessels caught in the Gulf off the mouth of the Colorado River must attempt to enter the river at a risk of damage or destruction. The proposed improvement would provide a reliable access to the river above Matagorda which is one of the best natural harbors of refuge along the Texas coast.

The river diversion will benefit the Gulf of Mexico and Matagorda Bay commercial fisheries by reducing bay salinities, establishing a salinity gradient in the bay, increasing the input of nutrients, and creating new intertidal marsh areas through delta growth. The plan also provides for increased oyster production by increasing the size of an existing reef and creating a new reef by placement of an oyster cultch. Implementation of the project will result in increased catches in the bay estimated at 956,000 pounds of oysters, 4,906,000 pounds of shrimp and 3,059,000 pounds of crabs per year. The annual offshore shrimp catch is estimated to increase by 494,000 pounds.

The public use area with recreation facilities will provide public recreation opportunities in an area where there is a specific need for such development.

Diversion of the Colorado River will reduce flooding below Matagorda, Texas, thereby reducing damages to summer homes, fishing piers, and roadway which parallels the existing flood discharge channel. Average annual benefits, based on October 1982 price levels, are as follows:

Annual Benefits	Amount
Navigation	$ 1,206,000
Recreation	45,000
Flood Control	7,000
Commercial Fish Enhancement	10,871,600
Total	$12,129,600

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FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and complete Tiger Dam	$ 65,000
Continue jetty walkway repairs	14,000
Complete construction of diversion dam	250,000
Complete dredging of connection channel to Gulf Intracoastal Waterway	472,000
Engineering and Design	121,000
Supervision and Administration	78,000
Total	$1,000,000

NON-FEDERAL COSTS: In accordance with the authorizing acts, the River and Harbor Act of 1968 and the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, rights-of-way, and dredged material disposal areas and retaining works for navigation features and bear all cost for operation and maintenance of dredged material disposal areas and retaining works for navigation features.	$ 503,000	$41,800
Pay one-half of the separable costs (including land) allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	380,000	17,100
Pay one-half of the separable and joint costs allocated to recreational navigation.	3,177,000	
Pay 25 percent of the cost for maintenance of the diversion feature.		9,100
Total Non-Federal Costs	$4,060,000	$68,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: By letters dated 14 February 1978, the Port of Bay City Authority and Matagorda County agreed to co-sponsor the project and provide the necessary local cooperation. The Local Cooperation Agreement as required by Section 221 of the Flood Control Act of 1970 was approved by the District Engineer 7 December 1981. In November 1981, a bond election for $2,500,000 was passed by voters of Matagorda County. The Local Cooperation Agreement was revised to conform with the Water Resources Development Act of 1986.

COMPARISON OF FEDERAL (CORPS OF ENGINEERS) COST ESTIMATE: The current Federal (Corps of Engineers) cost estimate of $29,600,000 is an increase of $700,000 over the latest estimate ($28,900,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$485,000
Post Conract Award and ther Estimating Adjustments	215,000
Total	$700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the navigation project was filed with Environmental Protection Agency in August 1978. The final Environmental Impact Statement on the diversion channel was filed with Environmental Protection Agency in December 1981.

OTHER INFORMATION: Funds to initiate be preconstruction planning were appropriated in Fiscal Year 1970 and allocated in Fiscal Year 1971. Funds to initiate construction were appropriated in Fiscal Year 1979. Initiation of construction was delayed because studies were required of controlled diversion flows of the Colorado River into Matagorda Bay. These studies have been completed, coordinated with all interested individuals and other agencies, and the diversion feature has been incorporated into the project. Initiation of construction was further delayed because approved 221 agreement was not obtained until December 1981. Construction was initiated in January 1984.

The first cost of the diversion feature was authorized at full Federal expense by the Water Resources Development Act of 1986.

Authorizing act, River and Harbor Act of 1968, also included a recreational area on the east bank of the navigation channel opposite Tiger Island Channel. At the request of the local sponsor, this recreation area has been placed in the "inactive" category.

APPROPRIATION TITLE: Construction, General - Locks and Dams (Navigation)

PROJECT: McClellan-Kerr Arkansas River Navigation System, Locks and Dams, AR and OK (Continuing)

LOCATION: The project is located in 15 counties in Arkansas and 6 counties in Oklahoma. The project begins at the confluence of the Mississippi and White Rivers and follows the White River and the Arkansas Post Canal a distance of 19 miles to the Arkansas River; thence up the Arkansas River 374 miles to the mouth of the Verdigris River; and thence up the Verdigris River to Catoosa, Oklahoma, a distance of 50 miles.

DESCRIPTION: The authorized project provides for the improvement of the Arkansas River and its tributaries by the construction of dams and channels to serve navigation, afford additional flood control, produce hydroelectric power, and provide related benefits, such as recreation and wildlife propagation. The navigation feature of the project consists of a 9-foot navigation channel from the Mississippi River to Catoosa, Oklahoma, 15 miles east of Tulsa.

AUTHORIZATION: River and Harbor Act of 1946, Water Resources Development Act of 1974 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is nearing completion.

TOTAL BENEFIT-COST RATIO: See above.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 2 1/2 percent (FY 1963).

BASIS OF BENEFIT-COST RATIO: Benefits are from evaluation approved in July 1963 at 1963 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST (CofE Only)	STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CoE)	$584,800,000		Entire Project	95	Sep 1995
Estimated Federal Cost (USCG)	2,268,000				
Estimated Non-Federal Cost	0				
Total Estimated Project Cost	587,068,000				

SUMMARIZED FINANCIAL DATA (CONTINUED)

		ACCUM. PCT. OF EST. FED. COST (CofE Only)
Allocations to 30 September 1989	554,934,000	
Conference Allowance for FY 1990	7,700,000	
Allocation for FY 1990	6,657,000 1/	
Allocations through FY 1990	561,591,000	96
Allocation Requested for FY 1991	8,500,000	97
Scheduled Balance to Complete after FY 1991	14,709,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $743,000 assigned as savings and slippage, $79,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $221,000 reprogrammed from the project.

PHYSICAL DATA

Channels: White River - 9.8 mi, 300' wide, mi 9.8 to 0.0

Arkansas Post Canal - 9.2 mi, 300' wide, mi 19.0 to 9.8

Arkansas River - 374 mi, 250' wide, mi 460.2 (1940 survey) to 41.6 (1943 survey)

Verdigris River - 50.3 mi, 150' wide (1965 survey)

All navigation channels were excavated to an initial depth of 12' or more below normal pool level.

Locks: Type - Single Chamber, single lift with miter gates

Size - 110' X 600'

Normal (maximum) Lift - Varies from 14' for Lock No. 4 to 30' for Lock No. 1.

Number of Locks and Dams - 11 on Arkansas River and canal, 2 on Verdigris River.

Dams: Movable nonnavigable type with low sills, piers, tainter gates, abutments, and overflow embankments where required.

Lands and Damages:

Acres: 70,610 Type: Predominately agricultural Improvements: Typical farm units

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PHYSICAL DATA (CONT'D)

Relocations:

Roads:	18 miles	$45,280,000 (Includes replacing 9 bridges, alter 3 bridges, and abandon 1 bridge.)			
Railroads:	7 miles	$40,436,000 (Includes replacing 2 bridges, alter 6 bridges, and abandon 1 bridge.)			
Cemeteries, Utilities, and Structures:		$30,016,000	Entrance Channel Levee:	3 miles	$10,270,000
(Conway Water Supply)		($21,324,000)			

JUSTIFICATION: The McClellan-Kerr Arkansas River Navigation System was conceived and authorized as an overall plan made up of a group of interrelated elements consisting of lakes, multiple-purpose structures, navigation structures, and bank stabilization works, all designed on a coordinated basis to provide for development of optimum benefits. In Oklahoma, construction of Keystone and Eufaula Lakes, Robert S. Kerr Lock and Dam, Webber Falls Lock and Dam and the initial and second phase of Oologah Lake are complete, as is construction of Dardanelle Lock and Dam and the Ozark-Jeta Taylor Lock and Dam in Arkansas and construction of bank stabilization and channel rectification between the Robert S. Kerr Dam in Oklahoma and the mouth. The project opened for navigation from the Mississippi River to the Port of Tulsa at Catoosa, Oklahoma in 1970. Completion of the navigation route was a significant benefit to the economy of the surrounding area. In 1989 an estimated 9,000,000 tons of cargo were moved on the navigation system. Of this traffic, 2,300,000 tons were inbound; 4,100,000 tons were outbound, 2,100,000 tons were moved internally; and 500,000 tons were through traffic. These movements included such commodities as rock, grain, iron and steel, chemicals, chemical fertilizers, coal, petroleum products, and sand and gravel. The average annual benefits, based on July 1963 price levels, are as follows:

Annual Benefits	Amount
Navigation	$40,470,000
Power	14,838,900
Channel Stabilization	6,575,000
Flood Control	6,602,600
Water Supply	828,900
Fish and Wildlife	312,000
Recreation	2,297,000
Area Redevelopment	3,355,800
Total	$75,280,200

821

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue construction of W.D. Mills Dam Stilling Basin Enlargement	$1,900,000
Complete construction of Entrance Channel Levee	4,453,000
Continue land Acquisition and Studies	758,000
Engineering and Design	789,000
Supervision and Administration	600,000
Total	$8,500,000

NON-FEDERAL COST: Local interests are required to provide adequate terminal and transfer facilities for navigation and bear the increased cost of maintenance and operation of all altered rail and highway routes, including bridges and appurtenances and utilities and other existing improvements, other than federally owned.

STATUS OF LOCAL COOPERATION: Prior to authorization of the project, local interests furnished written assurances that they would construct suitable public terminals. The requirements relative to increased cost of maintenance and operation of altered facilities apply to the owners of these facilities and were covered during negotiations of relocations contracts for the alteration of the various facilities.

Laws enacted in 1959 by the States of Arkansas and Oklahoma authorized the organization and operation of port authorities and permitted political subdivisions to engage in port activities. Port authorities have been organized to develop facilities in Oklahoma for the Tulsa-Rogers counties and the city of Muskogee and these ports are in operation.

In the State of Arkansas, port authorities have been organized to develop public port and harbor facilities at Fort Smith, Van Buren, Clarksville, Dardanelle-Russellville, Morrilton, Little Rock, North Little Rock, Ozark, and Pine Bluff-Jefferson County Area. The Clarksville Port Authority has acquired a 28-acre tract of land for the development of its port facility. The Fort Smith, Little Rock, and Pine Bluff-Jefferson County Ports are in operation.

In addition to the public ports discussed above, 35 companies are developing private port facilities along the navigation route in the State of Arkansas.

There are no other cost sharing or repayment requirements applicable to the project.

COMPARISON OF FEDERAL (CORPS OF ENGINEERS) COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $584,800,000 is an increase of $13,300,000 from the latest estimate ($571,500,000) submitted to Congress. This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$178,000
Post-Contract Award and other Estimating Adjustments	12,790,000
Price Escalation on Real Estate	332,000
Total	$13,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The overall project is essentially complete and in operation. The Final Operating and Maintenance Environmental Impact Statement for the McClellan-Kerr Arkansas River Navigation System in the Little Rock District was filed with the Council on Environmental Quality on 6 March 1975. The final Environmental Impact Statement for Tulsa District was filed with the Council on Environmental Quality on 28 July 1975.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1949 and for construction in FY 1963.

In the last few years, the low water level in the Mississippi River has caused delays in navigation on the White River portion of the system. The Waterways Experiment Station has performed model studies to determine if any modifications can be made in the Entrance Channel to improve navigation. Studies of alterations are complete and the results indicate an additional lock and dam in the Entrance Channel is the only physical solution that would improve navigation. Design refinements of the lock and dam are continuing with the overall planning studies scheduled for completion in September 1990. The construction cost for the solution to the low flow problem has not been determined pending completion of the detailed engineering studies.

The estimated cost for the Entrance Channel Levee, which was awarded for construction in June 1989, is $12.1 million. This amount includes $342,000 for the purchase of 275 acres of land required for Fish and Wildlife mitigation purposes.

823

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Fourche Bayou Basin, Little Rock, Arkansas (Continuing)

LOCATION: The project is located in Pulaski and Saline Counties in Arkansas, and bisects the city of Little Rock.

DESCRIPTION: The approved National Economic Development plan consists of 4.8 miles of channel excavation, channel protection under 3 highway bridges, and alteration of 1 highway bridge and 2 railroad bridges on Fourche Creek; alteration of 2 railroad embankments in Fourche Bottoms; 1.7 miles of channel clearing, 3.2 miles of channel excavation, 0.53 miles of levee, and alteration of three bridges on Rock Creek; 1.9 miles of channel excavation, and clearing and alteration of one bridge on Grassy Flat Creek. In addition, the plan of improvement includes the fee acquisition of 3 acres of rights-of-way, acquisition of 350 acres of perpetual channel improvement and access easements, and acquisition of 176 acres of temporary easement for disposal of materials.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 5.2 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 2.1 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum Supplement approved 27 January 1987 at 1986 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED. COST
Estimated Federal Cost		$19,100,000	
Estimated Non-Federal Cost		9,900,000	
Cash Contributions	$1,789,000		
Other Costs	8,111,000		
Total Estimated Project Cost		$29,000,000	

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	44	Mar 1992

PHYSICAL DATA

Levee: 0.5 miles
Channels: 11.6 miles
Relocations:
Railroads:
Alteration to four bridges ($3,654,000)

Division: Southwestern

District: Little Rock

29 JAN 1990

Project: Fourche Bayou Basin, Little Rock, Arkansas

SUMMARIZED FINANCIAL DATA (CONTINUED)

		ACCUM PCT. OF EST. FED. COST	
Allocations to 30 September 1989	5,170,000		
Conference Allowance for FY 1990	6,600,000		
Allocation for FY 1990	5,706,000	1/	
Allocations Through FY 1990	10,876,000	57	
Allocation Requested for FY 1991	6,900,000	93	
Scheduled Balance to Complete after FY 1991	1,324,000		
Unscheduled Balance to Complete after FY 1991	0		

1/ Reflects reduction of $637,000 assigned as savings and slippage, $68,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $189,000 reprogrammed from the project.

JUSTIFICATION: The project will protect the city of Little Rock, Arkansas, from the majority of flood flows in the Fourche Bayou Watershed. The area protected is highly urbanized and has experienced disastrous floods almost annually for the past several years. The flood of September 1978 was the most catastrophic on record with a loss of eight lives, and $17,200,000 ($28,480,000 in October 1989 price levels) in damages. An Interstate Highway was topped, a major discount center had 4 feet of water inside, and several hundred homes had from 1 to 6 feet of water. Two floods occurred in 1981 along Rock Creek. An area that had 6 feet of flooding in 1978 had 1 to 2 feet on both occasions in 1981. Over $10,700,000 ($17,716,000 in October 1989 price levels) in damages could have been prevented if the project had been in place in 1978. The estimated average annual benefits, based on October 1989 price levels, are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$4,336,000
Recreation	112,000
Total	$4,448,000

825

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete construction of railroad relocation	$1,487,000
Continue construction of recreation facilities	125,000
Continue construction of channel improvements	4,865,000
Engineering and Design	43,000
Supervision and Administration	380,000
Total	$6,900,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$3,260,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,990,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	211,000	$ 3,000
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	1,439,000	63,000
Total Non-Federal Costs	$9,900,000	$66,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor, the city of Little Rock, Arkansas entered into the Local Cooperation Agreement on 20 August 1987, and placed $1,359,000, the estimated cash contribution, into an escrow account on 2 September 1987. The current non-Federal cost estimate of $9,900,000, which includes a cash contribution of $1,789,000, is an increase of $1,000,000 from the non-Federal cost estimate of $8,900,000 noted in the Local Cooperation Agreement, which included a cash contribution of $1,425,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $19,100,000 is an increase of $5,100,000 from the latest estimate ($14,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$450,000
Post Contract Award and Other Estimating Adjustments	4,650,000
Total	$5,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Environmental Protection Agency on 12 March 1981.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1984. Funds to initiate construction were appropriated in Fiscal Year 1987. The Fourche Bayou Basin, Arkansas project was adopted and authorized in accordance with the plans and subject to the conditions recommended in the Report of the Chief of Engineers, dated September 4, 1981. This includes the acquisition of 1,750 acres of bottomland for environmental preservation. The cost of this environmental preservation, estimated at $2,800,000 in 1989, is not included and will have to be cost shared 75 percent Federal and 25 percent non-Federal if the acquisition is included.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $19,100,000 is an increase of $5,100,000 from the latest estimate ($14,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$450,000
Post Contract Award and Other Estimating Adjustments	4,650,000
Total	$5,100,000

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1984. Funds to initiate construction were appropriated in Fiscal Year 1987. The Fourche Bayou Basin, Arkansas project was adopted and authorized in accordance with the plans and subject to the conditions recommended in the Report of the Chief of Engineers, dated September 4, 1981. This includes the acquisition of 1,750 acres of bottomland for environmental preservation. The cost of this environmental preservation, estimated at $2,800,000 in 1989, is not included and will have to be cost shared 75 percent Federal and 25 percent non-Federal if the acquisition is included.

828

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Great Bend, Kansas (Continuing)

LOCATION: The project is located in Barton County, Kansas, on the north bank of the Arkansas River about 4-1/2 miles above its confluence with Walnut Creek.

DESCRIPTION: Project consists of a system of levees and channels being constructed to reduce flood damages that occur frequently in the City.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT-REMAINING COST RATIO: 14.5 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 9.1 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 6.0 to 1 at 3-1/4 percent (FY 1987).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in March 1986 at 1984 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost	$27,200,000	
Estimated Non-Federal cost	12,300,000	
Cash Contribution $ 2,000,000		
Other Costs 10,300,000		
Total Estimated Project Cost	$39,500,000	
Allocations to 30 September 1989	4,922,000	
Conference Allowance for FY 1990	7,400,000	
Allocation for FY 1990	5,398,000 1/	
Allocations through FY 1990	10,320,000	42

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	21	Aug 1993

PHYSICAL DATA

Grass Lined Channels:
Length - 5.6 miles
Bottom Width - 290 feet

Levees:
Length - 26.5 miles
Crown Width - 10 feet
Average Height - 8 feet

Relocations:
Railroads - two bridges ($2,578,000)

1/ Reflects reduction of $714,000 assigned as savings and slippage, $76,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,212,000 reprogrammed from the project.

628

Division: Southwestern

District: Tulsa

29 JAN 1990

Project: Great Bend, Kansas

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	$ 9,000,000	71
Scheduled Balance to Complete after FY 1991	7,880,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: The project will provide flood protection for about 24,950 acres of urban and suburban lands, irrigated lands, highways and railroads, commercial, industrial, and residential structures at, and in the vicinity of, Great Bend, Kansas, with an estimated property value in excess of about $700 million. The flood of record occurred on the Arkansas River in May 1942 and caused damages estimated at $213,800 ($9,120,000 at October 1989 prices). The latest significant flooding at Great Bend, Kansas occurred on 14-15 June 1981. The peak flow of the June 1981 flood was 14,000 cfs and losses were estimated to be in excess of $45,000,000 ($61,180,000 at October 1989 prices). Channel capacity at Great Bend is 4,000 csf. Flooding caused six breaks in the right bank levee from Highway 281 to several miles below the Highway 281 bridge. About 1,200 acres of cropland were flooded, 85 percent of the non-residential buildings had flood damage, 2,430 homes received slight to major damage, and approximately one-third of the population of 16,500 were evacuated. Ponding depths of up to six feet with an average of three feet are possible depending on flood magnitude. The average annual benefits are $13,478,000, all flood control, based on October 1984 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Railroad Relocation	$ 933,000
Continue Remaining Walnut Creek Diversion Channels and Levee	4,662,000
Continue Remaining Arkansas River and Walnut Creek Diversion Channels and Levee	2,890,000
Engineering and Design	141,000
Supervision and Administration	374,000
Total	$ 9,000,000

830

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, rights-of-way and dredged material disposal areas.	$ 4,027,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	6,273,000	
Pay five percent of the costs allocated to flood control and bear all cost of operation, maintenance and replacement of flood control facilities.	2,000,000	$ 264,000
Total Non-Federal Costs	$12,300,000	$ 264,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement with the City of Great Bend, Kansas was executed on 23 July 1987. The current non-Federal estimate of $12,300,000, which includes a cash contribution of $2,000,000, is a decrease of $2,800,000 from the non-Federal cost estimate ($15,100,000) noted in the approved Local Cooperation Agreement, which included a cash contribution of $2,320,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $27,200,000 is a decrease of $5,900,000 from the latest estimate ($33,100,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$1,089,000
Design Changes	(-) 6,300,000
Post Contract Award and Other Estimating Adjustments	(-) 689,000
Total	$5,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protectional Agency on 8 May 1987.

27-138 O—90—27

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1968. Preconstruction planning was halted in FY 1969 when bond elections to support the project failed. Preconstruction planning was resumed in FY 1972 and stopped in 1977 when the city stated they were unable to participate due to an unsuccessful bond election. On 6 April 1982, the city passed a $15,000,000 bond issue to provide for the required non-Federal participation, and engineering and design was resumed with funds provided in the FY 1983 Supplemental Appropriations Act. Funds to initiate construction were appropriated in FY 1987.

Mitigation at the project includes the planting of 28.5 acres of trees around the borrow areas, planting native species on the levee and diversion channel, retention of the normal flows in Wet Walnut Creek, and conservation easement on 85 acres of riparian woodland. The current cost estimate includes $18,000 for this work.

832

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Halstead, Kansas (Continuing)

LOCATION: The project is located in the city of Halstead, Harvey County, Kansas, along the Little Arkansas River.

DESCRIPTION: Major features of this flood protection project are channel modification and construction of about 4 miles of levee, in combination with straightening and widening about 3.1 miles of the Little Arkansas River channel to a 50-foot bottom width in the vicinity of Halstead.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.2 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 2.0 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in July 1984 at 1983 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$6,600,000	
Estimated Non-Federal cost		2,200,000	
Cash Contribution	$1,200,000		
Other Costs	1,000,000		
Total Estimated Project Cost		$8,800,000	
Allocations to 30 September 1989		867,000	
Conference Allowance For FY 1990		300,000	
Allocation for FY 1990		259,000 1/	
Allocations through FY 1990		1,126,000	17

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	April 1993

PHYSICAL DATA

Grass Lined Channel:
Length - 3.1 miles
Bottom Width - 50 feet

Levees:
Length - 4.0 miles
Crown Width - 10 feet
Average Height - 13 feet

1/ Reflects reduction of $29,000 assigned as savings and slippage and $3,000 sequestered in accordance with the Gramm-Rudman Hollings Act, and $9,000 reprogrammed from the project.

Division: Southwestern

District: Tulsa

29 JAN 1990

Project: Halstead, Kansas

833

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	$ 2,200,000	50
Scheduled Balance to Complete after FY 1991	3,274,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: The project will provide protection from periodic floods which have inundated the city numerous times in past years during periods of heavy spring and summer rains and storms. The flood of record occurred in October 1973 and caused damages estimated at $1,106,000. Assuming current prices (October 1989), damages would be about $2,730,000. The last flood occurred in October 1979, and the flood crest of 22.2 feet was reported to be just a few inches less than the flood of record in 1973. The project would have prevented $4,500,000 in flood damages based on an actual flood damage survey done in November 1979 ($6,820,000 at October 1989 prices). The project will protect 650 acres of urban and 1,010 acres of agricultural lands and includes commercial, industrial, public and residential structures and contents with an estimated value of $215,200,000. Average annual benefits are $1,442,700, all flood damage prevention, based on October 1983 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Channels and Canals	$ 948,000
Continue Levees and Floodwalls	1,032,000
Initiate Fish & Wildlife Facilities	68,000
Engineering and Design	57,000
Supervision and Administration	95,000
Total	$ 2,200,000

834

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, rights-of-way and dredged material disposal areas.	$ 517,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	483,000	
Pay 13.6 percent of the costs allocated to flood control costs to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance and replacement of flood control facilities.	1,200,000	$ 39,100
Total Non-Federal Costs	$2,200,000	$ 39,100

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement with the city of Halstead, Kansas was executed on 2 October 1989. The current non-Federal estimate of $2,200,000, which includes a cash contribution of $1,200,000, is the non-Federal cost estimate noted in the Local Cooperation Agreement. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $6,600,000 is an increase of $75,000 from the latest estimate ($6,525,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 237,000
Post Contract Award and Other Estimating Adjustments (-)	162,000
Total	$ 75,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 12 March 1981. A Supplemental Environmental Information Report was circulated and filed with the Environmental Protection Agency on 16 April 1985.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1982. Funds to initiate construction were appropriated in Fiscal Year 1987. In accordance with the Water Resources Development Act of 1986, additional studies found that with the addition of one riffle area and pilot channel, and development of access points to the Little Arkansas River, to the proposed mitigation plan, the project will be adequately mitigated. The project requires no additional land for fish and wildlife mitigation and the total estimated cost for mitigation at the project is $143,000 Federal and $27,000 non-Federal.

836

Division: Southwestern

District: Tulsa
29 JAN 1988

Project: Halstead, Kansas
69

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control) Deficiency Correction

PROJECT: Albuquerque North Diversion Channel, New Mexico - (New)

LOCATION: City of Albuquerque, Bernalillo County, New Mexico.

DESCRIPTION: Project consists of structural modifications to correct hydraulic deficiencies associated with the Albuquerque North Diversion Channel.

AUTHORIZATION: Flood Control Act of 1954.

REMAINING BENEFIT - REMAINING COST RATIO: 3.3 to 1 at 8-7/8 percent (Deficiency Correction only).

TOTAL BENEFIT - COST RATIO: 3.3 to 1 at 8-7/8 percent (Deficiency Correction only).

BASIS OF BENEFIT-COST RATIO: Benefits are from the Reconnaissance Report dated May 1989 at May 1989 price levels.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST
Original Project		
Actual Federal Cost	$17,570,000	
Actual Non-Federal Cost	11,060,000	
Cash Contributions	$ 530,000	
Other Costs	10,530,000	
Total Original Project Cost	$28,630,000	
Remedial Work		
Estimated Federal Cost	$ 1,950,000	
Estimated Non-Federal Cost	650,000	
Cash Contributions	$ 650,000	
Other Costs	0	
Total Estimated Remedial Cost	$ 2,600,000	

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	92	April 1992

PHYSICAL DATA

Rip Rap: 920 ft.

Widen Pilot Channel to 400 ft.

Structures: Concrete Sill
Wave Deflector
Diversion Channel
Removal of Access Ramp

Division: Southwestern

District: Albuquerque

Project: Albuquerque North Diversion Channel, New Mexico

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Total Estimated Project Cost	$ 31,230,000	
Allocations to 30 September 1989	17,570,000	
Conference Allowance for FY 1990	0	
Allocation for FY 1990	0	
Allocations through FY 1990	17,570,000	90
Allocation Requested for FY 1991	200,000	91
Scheduled Balance to Complete after FY 1991	1,750,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: The Albuquerque North Diversion Channel, is designed to intercept runoff from the arroyos which drain the mesa and western slopes of the Sandia Mountains lying east of the project. It protects the lowlands of the City of Albuquerque, New Mexico, and vicinity from destructive flooding by diverting floodwaters originating east of the project into the diversion channels and into the Rio Grande. The channel is trapezoidal and concrete lined throughout its entire length except for a short reach at the downstream end consisting of the Alameda Outlet structure which transitions flows from a supercritical to subcritical state before releasing them into the Rio Grande. This project consists of measures to correct the serious hydraulic deficiency which exists at the Alameda Outlet structure. Observation of flow on several occasions has revealed that flow in the approach channel to the stilling basin is very unsymmetrical with most of the downstream flow concentrated on the outside of the approach curve and an upstream flow component on the opposite side of the channel. A hydraulic jump has been forming upstream of the AT&SF Railroad bridge in lieu of its design location downstream of the bridge, greatly raising the water surface elevation at the bridge at discharges far below the design discharge. If the design discharge of 44,000 cfs were to flow in the North Diversion channel under existing conditions, at the point of the hydraulic deficiency, approximately 30,000 to 32,000 cfs would leave the channel and cause flooding. Hydrographs of the channel show that with a design discharge of 44,000 cfs, about 7,600 acre-feet of water would pond in the designated flood area. The average depth of flooding over the 2,400 acre flood plain would be about 3 feet. Depths in the area from a 100-year event would average about 1 foot. Safety reasons require corrective measures for this serious hydraulic deficiency. Flows that overtop the channel would be trapped on the east side of the Rio Grande Floodway, flowing through the Albuquerque urban and valley areas, rendering the North Diversion Channel ineffective in its function and causing economic damage and possible loss of life. A model study to investigate the flow conditions and the channel capacity of the North Diversion Channel and the Alameda Outlet Structure was completed in May 1987 by the Waterways Experiment Station. The average annual benefits, based on May 1989 price levels, are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$ 712,000
Reduced Operation and Maintenance	5,000
Reduced Flood Emergency Costs	15,000
Reduced Traffic Interruption	5,000
Total	$ 737,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate construction	$ 100,000
Engineering and Design	90,000
Supervision and Administration	10,000
Total	$ 200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation for Hydraulic Deficiency Correction	Payments During Construction	Annual Operation Maintenance and, Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas	$ 0	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	0	
Pay 25 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	650,000	$ 0 1/
Total Non-Federal Costs	$ 650,000	$ 0 1/

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ The correction will not increase the operation, maintenance and replacement costs.

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STATUS OF LOCAL COOPERATION: The existing operating project was completed in 1972 and has been properly maintained by the Albuquerque Metropolitan Arroyo Flood Control Authority, the local sponsor. Lands required to implement the deficiency correction are within the existing project area. The local sponsor strongly supports construction of the hydraulic deficiency correction and has provided a letter of assurance dated May 8, 1989. A Local Cooperation Agreement will be executed in April 1991.

COMPARISON OF FEDERAL COST ESTIMATES: The initial Federal cost estimate of $1,950,000 for the Hydraulic Deficiency Correction is based on a Reconnaissance Report updated to 1 October 1989 price levels and inflated through the construction period. This Reconnaissance Report addressed the hydraulic deficiencies at the Alameda Outlet of the North Diversion Channel.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment for the Hydraulic Deficiency Correction will be prepared by the end of the first quarter of Fiscal Year 1991. A signed Finding of No Significant Impact will be filed with the Environmental Assessment if the action does not have a significant environmental effect.

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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Rio Grande Floodway, Truth or Consequences Unit, New Mexico (Continuing)

LOCATION: The project is located in Sierra County approximately 7 miles northwest of Truth or Consequences, New Mexico on Cuchillo Negro Creek, a tributary of the Rio Grande.

DESCRIPTION: The project consists of a detention reservoir on Cuchillo Negro Creek designed to retain the 100-year flood plus the 100-year accumulated sediment.

AUTHORIZATION: Flood Control Acts of 1948 and 1950 and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 14.1 TO 1 at 8 7/8 percent.

TOTAL BENEFIT - COST RATIO: 2.2 to 1 at 8 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.8 to 1 at 8 7/8 percent (FY 1988).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in September 1987 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$10,200,000	
Estimated Non-Federal Cost		3,400,000	
Cash Contribution	$ 2,350,000		
Other Costs	1,050,000		
Total Estimated Project Cost		$13,600,000	
Allocations to 30 September 1989		$ 5,183,000	
Conference Allowance for FY 1990		6,000,000	
Allocation for FY 1990		3,600,000 1/	
Allocations through FY 1990		8,783,000	86

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	37	Jun 1991

PHYSICAL DATA

Dam:	Lands and Damages:
Height - 125 feet	Easement - 270 ac.
Crest Length - 590 ft.	Fee - 220 ac.
Outlet Works - Uncontrolled	Total - 490 ac.
High Level Outlet - 7 x 10 ft. Box	
Low Level Outlet - 5 ft. Diameter	
Material - Roller Compacted Concrete	

1/ Reflects reduction of $579,000 assigned as savings and slippage, $62,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $1,759,000 reprogrammed from the project.

Division: Southwestern District: Albuquerque Project: Rio Grande Floodway, Truth or Consequences Unit, New Mexico

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	1,417,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA (Continued)

Reservoir Capacity:
Flood control - 7,500 acre-feet
Sediment - 6,000 acre-feet

Mitigation: Planting and Development of 4.0 acres of trees

JUSTIFICATION: The project will provide flood protection from flood flows originating in Cuchillo Negro Creek. A major flood occurred on 2 September 1972. The area was declared a major disaster area by the President on 22 September 1972. The repair of flood protection structures in the vicinity of Truth or Consequences was estimated at $346,000. This includes $96,000 to repair levees from the Rio Grande upstream on the Cuchillo Negro Creek (a tributary of the Rio Grande with confluence just north of Truth or Consequences), and $250,000 to dredge the Rio Grande back to its pre-flood capacity. The most recent flood occurred in September 1976 and caused an estimated $80,000 damages. Recurrence of these two floods would cause damages of $919,000 and $153,000 (based on 1 October 1989 prices), respectively. The project will provide a high degree of protection to a significant portion of the urban areas of Truth or Consequences. In addition to direct protection, evacuation and relief of numerous individuals would be reduced during times of high flows. The average annual benefits are $2,787,000, all flood control, based on October 1987 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and Complete F&WL Mitigation	$ 16,000
Complete Construction of Dam	1,188,000
Engineering and Design	24,000
Supervision and Administration	189,000
Total	$1,417,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

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Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 820,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	0	
Perform access road construction compatible with the project.	230,000	
Pay 20 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	2,350,000	$ 43,000
Total Non-Federal Cost	$ 3,400,000	$ 43,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Local Cooperation Agreement with the city of Truth or Consequences was executed in September 1988. The current non-Federal cost estimate of $3,400,000, which includes a cash contribution of $2,350,000 is a decrease of $500,000 from the non-Federal cost estimate of $3,900,000 noted in the Local Cooperation Agreement, which includes a cash contribution of $2,850,000. In the Local Cooperation Agreement, the non-Federal sponsor indicated that it is financially capable and willing to contribute the required non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $10,200,000 is a decrease of $1,500,000 from the latest estimate ($11,700,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	(-) $ 38,000
Design Changes	(-) 1,462,000
Total	(-) $ 1,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact statement was filed with the Environmental Protection Agency in April 1988.

OTHER INFORMATION: Funds to initiate preconstruction planning were initially appropriated in Fiscal Year 1979. Fish and Wildlife Mitigation is estimated to cost $24,000.

Division: Southwestern

District: Albuquerque

Project: Rio Grande Floodway, Truth or Consequences Unit, New Mexico

29 JAN 1990

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Mingo Creek,Tulsa, Oklahoma (Continuing)

LOCATION: The project is located in Tulsa County, Oklahoma. Approximately 90 percent of Mingo's 61 square-mile drainage area lies within the City of Tulsa.

DESCRIPTION: The project consists of 23 detention sites, 4.0 miles of rock, grass and concrete-lined channels on Mingo Creek, and 5.3 miles of concrete- and grass-lined channels on several tributaries. The city of Tulsa has completed approximately 4.75 miles of the channelization on Mingo Creek.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.6 to 1.0 at 8-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1.0 at 8-7/8 percent.

INITIAL BENEFIT-COST RATIO: 2.0 to 1.0 at 8-7/8 percent (FY 1988)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in December 1987 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$101,300,000				
				Entire Project	16	Sep 1995
Estimated Non-Federal Cost		66,500,000				
Cash Contribution	$ 8,000,000					
Other Cost	58,500,000					
Total Estimated Project Cost		$167,800,000				
Allocations to 30 September 1989		8,280,000				
Conference Allowance For FY 1990		13,000,000				
Allocation for FY 1990		8,890,000	1/			
Allocations through FY 1990		17,170,000	17			

1/ Reflects reduction of $1,254,000 assigned as savings and slippage, $134,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,722,000 reprogrammed from the project.

Division: Southwestern District: Tulsa Project: Mingo Creek, Tulsa, Oklahoma

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	$ 13,600,000	30
Scheduled Balance to Complete after FY 1991	70,530,000	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA

Concrete Lined Channel:
Length - 16,561 feet
Bottom Width - 20-120 feet

Grass Lined Channel:
Length - 11,598 feet

Rock Lined Channel:
Length - 2,400 Feet
Bottom Width - 200 feet

Dams: Detention Sites - 23

JUSTIFICATION: On the average, Mingo Creek floods about once every 2-3 years. Since 1959, ten major floods have been recorded. Mingo Creek peaks quickly with little warning time to residents of approximately 3,100 homes in the flood plain. These floods rise rapidly within 30 minutes of a heavy rain, and recede quickly, after only one to six hours. A 100-year flood (full watershed urbanization) could rise four to eight feet in depth over the streambanks with a velocity of more than five feet per second. Such floods present great hazards to life and property. The flood of record occurred 26-27 May 1984 which caused an estimated $124,000,000 ($137,500,000 at October 1989 prices) damages in the Mingo Creek flood plain and resulted in 14 fatalities in the Tulsa area with five attributable to flooding from Mingo Creek. The average annual benefits are $32,967,000, all flood damage prevention, based on October 1987 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Mill/Jones Detention Dams and Channels	$ 1,014,000
Initiate Southern Tribs Detention Dams	1,000,000
Continue Mainstem Phase IA and IB Detention Dams	1,900,000
Continue Mainstem Phase II Detention Dams and Channels	5,305,000
Continue Audubon Channels	581,000
Engineering and Design	900,000
Supervision and Administration	900,000
Reimbursement to City	2,000,000
Total	$ 13,600,000

Division: Southwestern District: Tulsa Project: Mingo Creek, Tulsa, Oklahoma

29 JAN 1990

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, rights-of-way and dredged material disposal areas.	$42,900,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	15,600,000	
Pay five percent of the costs allocated to flood control and bear all cost of operation, maintenance and replacement of flood control facilities.	8,000,000	$ 399,600
Total Non-Federal Costs	$66,500,000	$ 399,600

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The local sponsor is the city of Tulsa, Oklahoma. On 26 August 1983, the City adopted a Resolution of Assurance to provide a minimum share equal to 35 percent or the traditional lands, easements, and rights-of-way, whichever is greater, and will be required to assist in the actual financing of construction. The City has constructed 3-1/2 miles of channel and placed in flood control operation two excavation detention facilities. The Local Cooperation Agreement with the city of Tulsa, Oklahoma was executed on 22 January 1988. The current non-Federal cost estimate of $66,500,000 which includes a cash contribution of $8,000,000, is an increase of $8,674,000 from the non-Federal cost estimate of $57,826,000 noted in the Local Cooperation Agreement, which included a cash contribution of $7,756,000. The non-Federal sponsor is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

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COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $101,300,000 is a decrease of $700,000 from the latest estimate ($102,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	(+)$ 1,955,000
Design Changes	(-) 2,655,000
Total	(-) 700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final report was filed with the Environmental Protection Agency on 3 June 1981. A supplemental report is included in the General Design Memorandum.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1985. Funds to initiate construction were appropriated in Fiscal Year 1988. Due to the loss of bottom land hardwoods, it was necessary to mitigate a fish and wildlife plan which includes acquisition of hardwoods for preservation. The current cost estimate includes $573,000 for acquisition of 125 acres of land.

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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Boggy Creek, Austin, Texas (Continuing)

LOCATION: The project is located in the city of Austin along Boggy Creek, Travis County, Texas.

DESCRIPTION: Boggy Creek, Austin, Texas, will provide local flood protection and recreation within the city of Austin, Texas. The channel improvement consists of 1.1 miles of grass lined channel and 1.7 miles of paved and gabion lined channel.

AUTHORIZATION: Supplemental Appropriations Act of 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 4.7 to 1 at 8-1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 8-1/8 percent.

INITIAL BENEFIT-COST RATIO: 1.08 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in January 1985 at 1983 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$ 16,700,000	
Estimated Non-Federal Cost		8,500,000	
Cash Contribution	$ 1,227,000		
Other Costs	7,273,000		
Total Estimated Project Cost		$ 25,200,000	
Allocations to 30 September 1989		8,657,000	
Conference Allowance for FY 1990		4,200,000	
Allocation for FY 1990		5,780,000 1/	
Allocations through FY 1990		14,437,000	86

STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	60	August 1991

PHYSICAL DATA

Channels:
1.1 miles of grass lined channel
1.7 miles of paved and gabion lined channel
Main channel lined with gabions where Fort Branch and Tannehill Branch flow into the improved channel.

Relocations:
Railroad Bridge ($648,000)

Division: Southwestern District: Fort Worth Project: Boggy Creek, Austin, Texas

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations Requested for FY 1991	2,263,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects $405,000 reduction assigned as savings and slippage; $43,000 sequestered in accordance with the Gramm-Rudman-Hollings Act; and $2,028,000 reprogrammed to the project.

JUSTIFICATION: The Boggy Creek watershed has a history of severe flooding, primarily caused by intense local thunderstorms. There are over twenty-two hundred structures in the 1,570-acre Standard Project Flood plain of the main stem Boggy Creek. About 2,070 or 95 percent of the structures are single-story wood homes. There are about 90 commercial/industrial and 14 public structures in the flood plain. These public structures consist primarily of public school buildings, churches, and a few municipal structures. The estimated value of existing investments within the flood plain is $155,000,000 at October 1989 price levels. On 28-29 October 1960, more than seven inches of rain fell in 12 hours resulting in a city wide flood with Boggy Creek watershed experiencing the greatest damage causing more than 200 basin residents to evacuate their homes. Twelve homes were destroyed by the flood waters. The total damages caused by the maximum known flood were $2,500,000 and recurrence of this flood using October 1989 price levels would cause $13,600,000 in damages. Since the October 1960 storm, flooding has occurred in June 1964, May 1965, August 1966, September and October 1973, May 1975, May and July 1979, May 1986 and May 1987. The project will provide a 100-year flood protection within the Boggy Creek watershed and satisfy recreation needs of 62,000 user-days annually. The estimated average benefits based on October 1983 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$ 2,714,000
Recreation	112,000
Total	$ 2,826,000

850

Division: Southwestern District: Fort Worth Project: Boggy Creek, Austin, Texas

29 JAN 1990

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Recreation Facilities	$ 203,000
Complete Channel Improvement Part II	1,558,000
Engineering and Design	109,000
Supervision and Administration	393,000
Total	$ 2,263,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payment During Construction	Annual Operations, Maintenance and Replacement Costs
Provide lands, easements, rights-of-way and material disposal areas.	$ 2,129,000	
Modify or relocate buildings, utilities, roads and other facilities (except railroad bridges) where necessary in the construction of the project.	4,719,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operations, maintenance, and replacement of recreation facilities.	231,000	$ 32,000
Pay five percent of the costs allocated to flood control and bear all costs of operations, maintenance, and replacement of flood control facilities.	1,227,000	43,000
Pay currently estimated 37 percent of the first costs allocated to fish and wildlife mitigation, and bear all costs of operation, maintenance, and replacement of fish and wildlife facilities.	130,000	5,000
Pay 33 percent of the first costs allocated to environmental quality enhancement.	64,000	
Total Non-Federal Costs	$ 8,500,000	$ 80,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The city of Austin, Texas is responsible for local cooperation and signed the Local Cooperation Agreement on 27 June 1986. The city has initiated land acquisition and through 30 September 1989 two of the five bridges have been constructed. The city of Austin's relocation of bridges and utilities will provide for a 100-year flood protection in accordance with the General Design Memorandum Phase II dated October 1984. The current non-Federal cost estimate of $8,300,000, which includes a cash contribution of $1,302,000, is a decrease of $1,900,000 from the non-

Federal cost estimate of $10,200,000 noted in the Local Cooperation Agreement, which included a cash contribution of $1,540,000. The non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $16,700,000 is an increase of $1,000,000 from the latest estimate ($15,700,000) presented to Congress (FY 1990). This change includes the following item:

Item	Amount
Price Escalation on Construction Features	$ - 11,000
Post Contract Award and Other Estimating Adjustments	1,011,000
Total	$ 1,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with Environmental Protection Agency on 30 June 1980.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1982 and for construction in the Fiscal Year 1985 Supplemental Appropriations Bill. Fish and wildlife measures currently estimated to be $353,000 are included in the authorized project.

852

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Clear Creek, Texas (Continuing)

LOCATION: The project is located about midway between the two metropolitan centers of Houston, Texas, on the north and Galveston-Texas City on the south in Harris and Galveston Counties above and below existing Clear Lake.

DESCRIPTION: The project provides for channel enlargement and easing of bends within the existing stream from Mile 3.8 to Mile 18.5 to contain at least the 10-year frequency storm, a second outlet with gated structure from Clear Lake to Galveston Bay, restriction of development in the residual 100-year flood plain and measures to mitigate environmental effects.

AUTHORIZATION: Flood Control Act of 1968 and the Supplemental Appropriations Act of 1985.

REMAINING BENEFIT - REMAINING COST RATIO: 3.1 to 1 at 3 1/4 percent.

TOTAL BENEFIT - COST RATIO: 2.4 to 1 at 3 1/4 percent

INITIAL BENEFIT - COST RATIO: 3.1 to 1 at 3 1/4 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are based on evaluation made in Supplement 1 to DM 1 approved 8 December 1987 and Supplement 1 to DM 2 approved August 1987.

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SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CofE)		$54,600,000		Entire Project	22	Sep 1995
Estimated Non-Federal Cost		44,020,000				
Cash Contributions	$ 4,920,000					
Other Costs	39,100,000					
Total Estimated Project Cost		$98,620,000				

Division: Southwestern District: Galveston Project: Clear Creek, Texas

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST	PHYSICAL DATA
Allocations to 30 September 1989	$ 8,220,000		Channels: 14.7 miles above Clear Lake
Conference Allowance for FY 1990	6,100,000		Second Outlet: gated outlet structure and channel from Clear Lake
Allocation for FY 1990	3,000,000	1/	
Allocations through FY 1990	11,220,000	21	Relocations: Railroads: Alterations to three bridges ($3,311,000)
Allocations Requested for FY 1991	3,700,000	27	
Scheduled Balance to Complete after FY 1991	39,680,000		
Unscheduled Balance to Complete after FY 1991	0		

1/ Reflects $588,000 reduction assigned as savings and slippage, $63,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,449,000 reprogrammed from the project.

JUSTIFICATION: The project would provide flood protection for a rapidly developing residential and commercial area, a suburb of Houston. Value of land and improvements that would be protected from the design flood is estimated at $509,650,000 based on 1989 price levels. Flooding in June 1976 caused minor damages; however, development in the area has continued and more runoff and damages would occur under current conditions. In July 1979, major flooding occurred and approximately $43,066,000 in damages were experienced based on 1989 price levels. The average annual benefits are $8,138,600, all flood damage prevention, based on 1 October 1986 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate construction of second outlet channel	$1,557,000
Complete Southern Pacific Rail Road bridge and approaches Mi 0.43	62,000
Complete construction of second outlet structure	1,039,000
Engineering and Design	731,000
Supervision and Administration	311,000
Total	$3,700,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Provide lands, easements, rights-of-way and dredged material disposal areas.	$18,100,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	21,000,000	
Pay 5 percent of the separable costs allocated for mitigation measures.	102,000	
Pay 5 percent of the first costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	4,818,000	$430,000
Total Non-Federal Costs	$44,020,000	$430,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The sponsors are Galveston and Harris Counties. On 30 June 1986, the sponsors entered into a Local Cooperation Agreement to provide the necessary local cooperation.

The current non-Federal cost estimate of $44,020,000 which includes a cash contribution of $4,920,000, is an increase of $10,231,000 over the non-Federal cost estimate of $33,789,000 noted in the Local Cooperation Agreement, which included a cash contribution of $4,789,000. Our analysis of the non-Federal sponsors' financial capability to participate in the project affirms that the sponsors have a reasonable and implementable plan for meeting their financial committment.

COMPARISION OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $54,600,000 is an increase of $1,400,000 over the latest estimate ($53,200,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$462,000
Post Contract Award and Other Estimating Adjustments	938,000
Total	$1,400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Environmental Protection Agency August 1982.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1972. Funds to initiate construction were appropriated by the Fiscal Year 1985 Supplemental Appropriations Act.

By letter 20 February 1986, Brazoria County Drainage District No. 4 requested that the portion of the project lying upstream of the Brazoria-Galveston County line, river mile 18.5, be placed in the "inactive" category. Reclassification was approved 27 May 1986. The relocation of the railroad bridge and approaches at Mil 0.43 was previously placed in an "Unscheduled Construction" category as the Southern Pacific Railroad, by letter 1 November 1988, stated their intent to abandon this bridge. However, relocation of this bridge remains scheduled pending their final decision. The total cost of fish and wildlife mitigation is $2,192,000 (Federal $2,090,000 and non-Federal $102,000).

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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: El Paso, Texas (Continuing)

LOCATION: The project is located in El Paso, El Paso County, Texas

DESCRIPTION: The project consists of a single-purpose flood control system of detention dams, diversion dikes, conduits, and channels to collect, regulate and discharge runoff into the Rio Grande.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 3.7 to 1 at 3 1/4 percent.

TOTAL BENEFIT - COST RATIO: 2.0 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.5 to 1 at 3 1/4 percent (FY 1970).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum approved in September 1987 at October 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$109,900,000	
Estimated Non-Federal Cost		36,100,000	
Cash Contribution	$ 3,920,000		
Other Costs	32,180,000		
Total Estimated Project Cost		$146,000,000	
Allocations to 30 September 1989		$ 63,550,000	
Conference Allowance for FY 1990		5,300,000	
Allocation for FY 1990		4,583,000 1/	
Allocations through FY 1990		68,133,000	62

1/ Reflects reduction of $511,000 assigned as savings and slippage, $55,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $151,000 reprogrammed from the project.

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	55	Sep 1995

PHYSICAL DATA

Central Area:
Dams - 6
Channels - 34,900 ft.
Conduits - 25,900 ft.

Northwest Area:
Dams - 5
Channels - 21,000 ft.
Conduits - 13,700 ft.

Southeast Area:
Channels - 26,000 ft.
Dams - 4

Detention Basins:
Chevron
Phelps Dodge
Lomaland
Americas

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SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	$ 9,000,000	70
Scheduled Balance to Complete after FY 1991	32,767,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: Project provides flood protection for urban areas subject to damaging floods from arroyos on the slopes of adjacent mountains. Major damaging floods occurred in 1950, 1955, 1958, 1962, 1963, 1966, 1967, 1968, and 1974. The flood of record occurred in 1958 and caused estimated damages of $984,000. Recurrence of this flood based on October 1989 prices would cause damages estimated at $6,021,000. Standard Project Flood is the design flood for the Central and Northwest Areas. The National Economic Development Plan has been selected for the Southeast Area. Estimated urban acres protected by the authorized project are 8,830. Value of land improvements in the Standard Project Flood Plain is about $2.22 Billion (October 1989 prices). Average annual benefits are $10,873,000, all flood control, based on October 1987 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Bluff Channel	$ 359,000
Continue Americas Basin	3,248,000
Complete Phelps Dodge Channel	3,442,000
Complete Pershing Dam (DSA)	833,000
Engineering and Design	419,000
Supervision and Administration	699,000
Total	$9,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

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Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Central and Northwest Areas:		
Provide lands, easements, rights of way, and dredged material disposal areas.	$10,740,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	2,560,000	
Pay 25 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	230,000	$430,800
Total Non-Federal Cost (Central and Northwest Areas)	$13,530,000	$430,800
Southeast Area:		
Provide lands, easements, rights of way, and dredged material disposal areas.	$18,450,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	430,000	
Pay 5 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all cost of operation, maintenance, and replacement of flood control facilities.	3,690,000	$ 67,000
Total Non-Federal Cost (Southeast Area)	$22,570,000	$ 67,000
Total Non-Federal Cost (Southeast, Central and Northwest Areas)	$36,100,000	$497,800

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Division: Southwestern District: Albuquerque Project: El Paso, Texas

29 JAN 1988

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STATUS OF LOCAL COOPERATION: The project sponsor, the city of El Paso, executed a Section 221 agreement on 31 August 1972 which was approved by the Secretary of the Army on 7 September 1972. The city of El Paso is acquiring rights-of-way for each item of construction as required.

The Local Cooperation Agreement for construction in the Southeast Area was executed with the city of El Paso, Texas, in September 1988. The current non-Federal cost estimate of $22,570,000, for the southeast area, which includes a cash contribution of $3,690,000 is an increase of $870,000 from the non-Federal cost estimate of $21,700,000 noted in the Local Cooperation Agreement, which included a cash contribution of $3,700,000. In the Local Cooperation Agreement, the non-Federal Sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal Sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

The Local Cooperation Agreement for construction of the Pershing Dam Safety Modification in the Central Area is scheduled to be executed in June 1990. By letter dated 14 March 1989, the City of El Paso agreed to financially participate in project construction. No land acquisition is required to perform the modification to the dam.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $109,900,000 is a decrease of $1,000,000 from the latest estimate ($110,900,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	(-) $1,501,000
Design Changes	501,000
Total	(-) $1,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement for the Central Area was filed with the Council on Environmental Quality in November 1970. The final Environmental Impact Statement for the Northeast Area was submitted to the Council on Environmental Quality on 7 November 1977. The final Environmental Impact Statement for the Southeast Area was filed with the Environmental Protection Agency in November 1987.

OTHER INFORMATION: Funds to initiate engineering and design were appropriated in Fiscal Year 1967, and for construction in Fiscal Year 1970. The plan of improvement for the Southeast Area provides the National Economic Development level of protection to existing development at an estimated first cost of $73,760,000 (October 1989 price levels). Funds to initiate construction of the Southeast Area were appropriated in Fiscal Year 1988.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Lake Wichita, Holliday Creek at Wichita Falls, Texas (Continuing)

LOCATION: City of Wichita Falls, Wichita and Archer Counties, Texas

DESCRIPTION: Replacement of the existing dam with an earthen dam, a concrete spillway, auxiliary spillway and low-flow outlet works; and channel improvements along Holliday Creek from the new spillway to the Wichita River.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.4 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8 5/8 percent (FY 1987).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in September 1985 at 1984 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$33,700,000	
Estimated Non-Federal cost		11,500,000	
Cash Contribution	$2,000,000		
Other Costs	5,500,000		
Dam Safety	4,000,000		
Total Estimated Project Cost		$45,200,000	
Allocations to 30 September 1989		9,314,000	
Conference Allowance For FY 1990		7,600,000	
Allocation for FY 1990		6,571,000 1/	
Allocations through FY 1990		16,065,000	48

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	34	June 1993

PHYSICAL DATA

Channels:
Length - 8 miles
Bottom Width - 45-65 ft

Dams: Earthfilled
Length - 13,193 ft

Relocations:
Railroads - ($1,002,000)

Spillway: Broadcrested Weir
Maximum discharge-75,900 cfs

1/ Reflects reduction of $733,000 assigned as savings and slippage, $78,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $218,000 reprogrammed from the project.

Division: Southwestern | District: Tulsa | Project: Lake Wichita, Holliday Creek at Wichita Falls, Texas

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	$11,200,000	81
Scheduled Balance to Complete after FY 1991	6,615,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: The Lake Wichita Dam has been inspected under the National Dam Safety Program and is considered safe for normal inflows, but could fail due to overtopping when subjected to the large floods the watershed is capable of producing. Such failure would result in catastrophic damages. Corrective measures to prevent dam failure are included in the plan for Lake Wichita, Holliday Creek. The plan under construction will provide 100-year flood protection for approximately 1,700 acres of urban land and eliminate the possibility of a major dam failure while maintaining a desired recreation lake. The average annual benefits are $5,130,500, all flood damage prevention. based on October 1984 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Spillway	$ 1,139,000
Continue Channels	9,207,000
Engineering and Design	285,000
Supervision and Administration	569,000
Total	$ 11,200,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Provide lands, easements, rights-of-way and dredged material disposal areas, including dam safety.	$ 2,869,000	
Pay all costs in making Lake Wichita Dam safe.	4,000,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	2,631,000	
Pay five percent of the costs allocated to flood control and bear all costs of operation, maintenance and replacement of flood control facilities.	2,000,000	$ 169,100
Total Non-Federal Costs	$11,500,000	$ 169,100

Division: Southwestern District: Tulsa Project: Lake Wichita, Holliday Creek at Wichita Falls, Texas

29 JAN 1990

27-138 O—90—29

STATUS OF LOCAL COOPERATION: The current non-Federal cost estimate of $11,500,000, which includes a cash contribution of $2,000,000, is a decrease of $2,700,000 from the non-Federal cost estimate of $14,200,000 noted in the Local Cooperation Agreement, which included a cash contribution of $2,200,000. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $33,700,000 is a decrease of $2,300,000 from the latest estimate ($36,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	(+)$ 696,000
Design Changes	(-) 2,996,000
Total	(-)$2,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 5 March 1981. A Supplemental Environmental Information Report was circulated and filed with the Environmental Protection Agency on 5 February 1986.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in Fiscal Year 1982. Funds to initiate construction were appropriated in Fiscal Year 1987.

Division: Southwestern

District: Tulsa

29 JAN 1990

Project: Lake Wichita, Holliday Creek at Wichita Falls, Texas

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: San Antonio Channel Improvement, Texas (Continuing)

LOCATION: The project is located in the city of San Antonio, Bexar County, Texas.

DESCRIPTION: The project includes local protection features including channels, levees and two diversion tunnels.

AUTHORIZATION: Flood Control Act of 1954 and the Water Resources Development Act of 1976.

REMAINING BENEFIT-REMAINING COST RATIO: 6.0 to 1 at 2-1/2 percent.

TOTAL BENEFIT-COST RATIO: 2.3 to 1 at 2-1/2 percent.

INITIAL BENEFIT-COST RATIO: 1.28 to 1 at 2-1/2 percent (FY 1957).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in May 1987 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$115,000,000	
Estimated Non-Federal Cost		93,000,000	
Cash Contributions	$ 3,000,000		
Other Costs	90,000,000		
Total Estimated Project Cost		$208,000,000	
Allocations to 30 September 1989		88,765,000	
Conference Allowance for FY 1990		17,000,000	
Allocation for FY 1990		14,698,000 1/	
Allocations through FY 1990		103,463,000	91

STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	84	Jul 1992

PHYSICAL DATA

Channels: 34.9 miles
Concrete drop structure: one
Relocations:
  Railroad: alteration to 11 bridges ($560,000)
Tunnels:
  San Pedro Creek, 6,040 feet in length
  San Antonio River, 16,360 feet in length

1/ Reflects reduction of $1,640,000 assigned as savings and slippage, $175,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $487,000 reprogrammed from the project.

Division: Southwestern District: Fort Worth Project: San Antonio Channel Improvement, Texas

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocation Requested for FY 1991	7,100,000	96
Scheduled Balance to Complete after FY 1991	4,437,000	
Unscheduled Balance to Complete after FY 1991	0	

JUSTIFICATION: The improvements will provide a high degree of protection to the metropolitan area of San Antonio which has been subject to disastrous floods and heavy loss of life in the past. Approximately 3,085 acres of urban lands are subject to flooding in San Antonio. Value of land and improvements that would be protected from the design flood is estimated at $858,400,000 based on 1989 price levels. The maximum flood of record occurred in September 1921 causing $949,000 in damages and affected areas totaling 2,900 acres. A recurrence of this flood under current conditions and October 1989 price levels would result in damages estimated at $57,100,000 of which $55,800,000 would be prevented with project in full operation. The last major flood occurred in June 1987 during which $12,600,000 in damages were prevented by completed portions of the project. The estimated average annual benefits, based on October 1987 price levels, are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$13,466,000
Land Enhancement	915,000
Total	$14,381,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate construction of Units 8-4 and 8-5-1, San Antonio River, Intake and Outlets - Phase IV	$3,563,000
Complete Construction of Unit 7-3-2, San Pedro Creek	530,000
Complete Construction of Unit 7-3-1, Inlet and Outlet - Phase III	787,000
Complete Construction of Unit 7-3-1, Unit 8-4 and Unit 8-5 (tunnels) - Phase II	1,497,000
Engineering and Design	71,000
Supervision and Administration	652,000
Total	$7,100,000

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Division: Southwestern District: Fort Worth Project: San Antonio Channel Improvement, Texas

NON-FEDERAL COST: In accordance with the authorizing act, Flood Control Act of 1954, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Costs
Provide lands, relocation payments, and assistance to displaced persons.	$17,125,000	
Modify and relocate/reconstruct channel dams, bridges and utilities.	52,074,000	
Channel rectification.	20,801,000	
Pay 2.65 percent of Federal construction costs, based on land enhancement benefits, and bear all costs of operation, maintenance, and replacement of flood control facilities.	3,000,000	$735,000
Total Non-Federal Costs	$93,000,000	$735,000

The Non-Federal Sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The San Antonio River Authority, a State agency, by an ordinance passed on 28 February 1956, agreed to comply with all the requirements of local cooperation. Under a contract of 12 September 1955, the Authority was authorized to expend $12,000,000 on capital improvements; however, due to continuous increase in cost of construction and relocations, added channel improvement below Bergs Mill, increased land values, and local interests costs required by the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, the Authority estimates $93,000,000 will now be required. Cash contributions in the amount of $1,764,000 have been received from the Authority through September 1989 in compliance with requirements of the Flood Control Act of 1954. Rights-of-way have been furnished as required for construction performed to date. Thus far, local interests have expended approximately $58,128,000 for lands, required modifications of utilities and bridges, channel rectification, relocation/reconstruction of channel dams, payments required for relocation assistance, and required cash contributions.

In addition, local interests have incurred costs of $4,555,000 for reconstruction of Olmos Dam in the late 1970's and early 1980's when it was determined that the existing dam was in danger of overturning in certain flooding conditions. Olmos Dam is a flood control detention reservoir with no permanent storage. It was constructed during 1925-26 at a cost of approximately $1,575,000. The dam will continue to operate as an integral part of the San Antonio Channel Improvement project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $115,000,000 remains the same as the latest estimate ($115,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item		Amount
Price Escalation on Construction Features	$	193,000
Post Contract Award and Other Estimating Adjustments	(-)	193,000
Total	$	0

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 9 November 1971. The final Supplemental Environmental Impact Statement for Unit 8-3-2 was filed with the Environmental Protection Agency on 13 February 1981. An Environmental Assessment for the tunnels on Units 8-4, 8-5-1, and 7-3-1 resulted in a Finding Of No Significant Impact and the Record of Decision was signed by the District Engineer 20 May 1986. Both are on file in the Fort Worth District Office.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1956 and for construction in Fiscal Year 1957.

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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sims Bayou, Houston, Texas (Continuing)

LOCATION: The project is located in Harris County, in the southern portion of Houston, Texas.

DESCRIPTION: The project provides for enlargement and rectification, with appropriate erosion control measures, of 19.31 miles of Sims Bayou, environmental measures and recreational development consisting of hike-and-bike trails connecting existing public parks, as well as picnic areas, and other day-use facilities.

AUTHORIZATION: Water Resources Development Act of 1986 and Energy and Water Development Appropriations Act of 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 11.9 to 1 at 8-5/8 percent.

TOTAL BENEFIT - COST RATIO: 11.6 to 1 at 8-5/8 percent.

INITIAL BENEFIT - COST RATIO: 9.3 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT - COST RATIO: Benefits are from the General Design Memorandum dated January 1989 and Post Authorization Change Report dated April 1989 at 1989 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$178,400,000		Entire Project	5	Sep 1998
Estimated Non-Federal Cost		87,100,000				
Cash Contribution	$15,420,000					
Other Costs	71,680,000					
Total Estimated Project Cost		$265,500,000				

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SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST	PHYSICAL DATA
Allocations to 30 September 1989	$2,390,000		Channels:
Conference Allowance for FY 1990	4,000,000		Sims Bayou - 19.3 miles
Allocation for FY 1990	1,958,000	1/	Relocations:
Allocations through FY 1990	4,348,000	2	Railroad bridges
			Utilities
Allocation Requested for FY 1991	12,600,000	10	Roads
Balance to Complete after FY 1991	161,452,000		Recreation facilities
Unscheduled Balance to Complete after FY 1991	0		Hike-and-bike trails with picnic and comfort facility

1/ Reflects $386,000 reduction assigned as savings and slippage, $41,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,615,000 reprogrammed from the project.

JUSTIFICATION: The project will eliminate stream flooding from 14,800 acres of urban lands and beneficially affect nearly 23,000 structures, mostly residential. The 100-year flood plain would be reduced to 2,300 acres outside the required rights-of-way. The recreational development will partially satisfy existing demand in the area. Average annual benefits, based on March 1989 prices are as follows:

Annual Benefits	Amount
Flood Damage Prevention	$280,200,400
Recreation	945,300
Total	$281,145,700

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and complete relocation Atchison, Topeka and and Santa Fe Railroad Bridge	$ 91,000
Initiate channel rectification - Mouth to Port Terminal Railroad	7,279,000
Reimbursement to Sponsor	2,475,000
Engineering and Design	2,472,000
Construction Management	283,000
Total	$12,600,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$35,830,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	33,579,000	
Pay one-half of the separable costs allocated to recreation and bear all cost of operation, maintenance, and replacement of recreation facilities.	2,390,000	$180,000
Pay 5 percent of the first costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	13,030,000	313,700
Pay a portion of planning, engineering, and design.	2,271,000	
Total Non-Federal Costs	$87,100,000	$493,700

The non-Federal sponsor must also agree to make all required payments concurrently with project construction.

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STATUS OF LOCAL COOPERATION: The sponsor for the flood control project is Harris County. The sponsor for the recreation features is the City of Houston, Texas. Final Local Cooperation Agreements are scheduled for execution in April 1990. Our analysis of the non-Federal sponsors' financial capability to participate in the project affirms that the sponsors have a reasonable and implementable plan for meeting their financial committment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $178,400,000 is an increase of $52,400,000 over the latest estimate ($126,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$(-)8,338,000
Post Contract Award and Other Estimating Adjustments	60,738,000
Total	$ 52,400,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency in October 1983.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1986 and funds to initiate construction were appropriated in Fiscal Year 1990.

Secretary of the Army has approved the sponsor's request for credit for work performed by the local sponsor. This credit is currently estimated at $25,754,000, exclusive of lands and will be reimbursed during construction. The project was reauthorized by the Energy and Water Development Appropriations Act of 1990 as the project cost estimate exceeded the maximum cost growth as described in Section 902 of the Water Resources Development Act of 1986.

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APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Taylors Bayou, Texas (Continuing)

LOCATION: The project is located in Jefferson, Chambers, and Liberty Counties, in the extreme southeast corner of Texas.

DESCRIPTION: The authorized improvements consist of constructing a gated structure to prevent saltwater intrusion and 2.9 miles of new diversion channel and enlarging 1.8 miles of Gulf Intracoastal Waterway, a 1.9-mile section of the outfall canal from Taylors Bayou to the Gulf Intracoastal Waterway, 6.0 miles of Taylors Bayou, 14.3 miles of Hillebrandt Bayou, 1.5 miles of Pivitot Bayou, 2.3 miles of Bayou Din, 7.0 miles of North Fork Taylors Bayou, 7.8 miles of South Fork Taylors Bayou, 4.4 miles of Mayhaw Bayou, and 3.5 miles of Willow Marsh Bayou. Improvements to the North and South Forks of Taylors and Mayhaw Bayou have been placed in the "inactive" catagory.

AUTHORIZATION: Flood Control Act of 1965

REMAINING BENEFIT - REMAINING COST RATIO: 4.0 to 1 at 3 1/4 percent.

TOTAL BENEFIT - COST RATIO: 1.7 to 1 at 3 1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.5 to 1 at 3 1/4 percent (FY 1970).

BASIS OF BENEFIT - COST RATIO: Benefits are based on Supplement No. 2 to Design Memorandum No. 1, approved 24 August 1981, at 1981 price levels.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CofE)		$38,400,000		Entire Project	54	Sep 1992
Estimated Non-Federal Cost		33,100,000				
Cash Contributions	$13,200,000					
Other Costs	19,900,000					
Total Estimated Project Cost		$71,500,000				

SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$24,730,000	
Conference Allowance for FY 1990	5,600,000	
Allocation for FY 1990	2,942,000 1/	
Allocations through FY 1990	$27,672,000	72
Allocations Requested for FY 1991	$4,700,000	84
Scheduled Balance to Complete After FY 1991	6,028,000	
Unscheduled Balance to Complete After FY 1991	0	

PHYSICAL DATA		
Channels:		
GIWW Enlargement	-	1.8 miles
Outfall Canal	-	1.9 miles
Diversion Canal	-	2.9 miles
Taylors Bayou	-	6.0 miles
Hillebrandt Bayou	-	14.3 miles
Pivitot Bayou	-	1.5 miles
Willow Marsh Bayou	-	3.5 miles
Bayou Din	-	2.3 miles
TOTAL	-	34.2 miles

1/ Reflects $540,000 reduction assigned as savings and slippage, $58,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,060,000 reprogrammed from the project.

JUSTIFICATION: Improvement of Taylors Bayou and its tributaries will significantly reduce the prevalent flood hazard in the upper watershed, and resultant economic losses; minimize damages to health and welfare and disruption of everyday community services and activities; and upgrade the habitability and growth of protected urban areas. The improvement of drainage which will accrue from rectification of the existing streams will provide desirable gains in both the quality and quantity of agricultural production in the portions of the watershed used for agriculture and improve forage areas for native waterfowl afforded by rice fields. The saltwater barrier will also provide the Texas Parks and Wildlife Department with an effective management tool for controlling the water quality and salinity balance in the J. D. Murphree Wildlife Management area.

Damages experienced in 1963 were $3,796,000. A recurrence of the flood of 1963 would cause damages estimated at $38,213,000 (October 1989 prices). Average annual benefits are as follows:

Annual Benefits	Amount
Flood Control	$1,400,000
Major Drainage	2,645,000
Total	$4,045,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate channel rectification, Bayou Din and Pivitot	$ 400,000
Initiate channel rectification, Hillebrandt Bayou (Sta 350 to Sta 462)	310,000
Initiate channel rectification, Hillebrandt Bayou (Sta 550 to Sta 756)	1,840,000
Continue channel rectification, Willow Marsh	830,000
Complete construction of Disposal Area 10-N-B	310,000
Engineering and Design	400,000
Supervision and Administration	610,000
Total	$4,700,000

NON-FEDERAL COST: In accordance with the authorizing act, the Flood Control Act of 1965, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Provide lands, easements, and rights-of-way and dredged material disposal areas.	$ 3,200,000	
Relocate utilities and other facilities, where necessary, in the construction of the project.	16,700,000	
Pay 25.4 percent of the costs allocated to flood control and major drainage.	12,894,000	
Pay 35 percent of fish and wildlife mitigation measures.	306,000	
Bear all costs of operation and maintenance and replacement of flood control and mitigation facilities.		$212,000
Total Non-Federal Costs	$33,100,000	$212,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

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STATUS OF LOCAL COOPERATION: By resolution dated 25 February 1969, Jefferson County Drainage District No. 6 agreed to furnish all items of local cooperation and act for the Taylors Bayou Committee comprised of Jefferson County Drainage Districts Nos. 3, 6, and 7, and the Beaumont Navigation District. On November 1979, two of the drainage districts with a financial majority of the local sponsorship of the project, passed bond issues totaling $17,000,000 to support the project. (Jefferson County Drainage District No. 6 - $15,000,000, and Jefferson County Drainage District No. 3 - $2,000,000.) The $17,000,000, combined with funds available to local sponsors, gives them a financial capability of about $20,000,000. The written local cooperation agreement as required by Section 221 of the Flood Control Act of 1970 was approved by Office, Chief of Engineers, on 2 November 1972. In addition, local interests have expended $1,954,000 on improvement of the major outlets within the limits established for the Federal project.

COMPARISION OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $38,400,000 is a decrease of $2,000,000 from the latest estimate ($40,400,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 94,000
Post Contract Award and Other Estimating Adjustments	(-)2,094,000
Total	$(-)2,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A revised final Environmental Impact Statement was filed with the Council on Environmental Quality on 18 August 1975. A supplement to the statement was submitted to the Environmental Protection Agency in July 1981.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1967. Funds to initiate construction were appropriated in Fiscal Year 1970 and were allocated in Fiscal Year 1971.

Construction was delayed because the authorized plan was not environmentally acceptable. Following severe flooding in 1979, the local sponsors indicated that the benefits from construction of the project were essential to the well-being of the watershed inhabitants. Therefore, studies and redesign were initiated in coordination with fish and wildlife agencies. The local sponsors presented support for the revised plan for the Taylors Bayou Project. Construction started in Fiscal Year 1982.

Total cost of fish and wildlife mitigation based on October 1989 price levels is $874,000 ($568,000 Federal and $306,000 non-Federal).

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Texas City and Vicinity, Texas, Hurricane-Flood Protection (Continuation)

LOCATION: The project is located within the city limits of Texas City and La Marque, Texas, on the southwest shores of Galveston Bay, in Galveston County, Texas.

DESCRIPTION: The project provides for the protection of about 36 square miles from a hurricane storm tide of 15 feet above National Geodetic Vertical Datum (NGVD). The system consists of 15.7 miles of earthen levees varying in elevation from 15 to 23 feet NGVD and 1.3 miles of concrete floodwalls with elevations of 21 to 23 feet NGVD. The system has numerous appurtenant structures including a tide control and navigation structure for Moses Lake, vehicular and railroad closure gates, highway ramps, gated gravity drainage structures, and two pumping plants with a combined capacity of 705,000 gallons per minute.

AUTHORIZATION: Flood Control Act of 1958 and 1968 and Water Resources Development Act of 1974.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is complete for all practical purposes.

TOTAL BENEFIT - COST RATIO: The total benefit-cost ratio is not applicable because the project is complete.

INITIAL BENEFIT - COST RATIO: 4.2 to 1 at 2 5/8 percent (FY 1962).

BASIS OF BENEFIT - COST RATIO: The basis of benefit-cost ratio is not applicable because the project is complete.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (CofE)		$40,400,000		Entire Project	100 1/	FY 1987
Estimated Non-Federal Cost		17,600,000				
Cash Contributions	$15,180,000			1/Ongoing work is for emergency repairs to toe of levee.		
Other Costs	2,420,000					
Total Estimated Project Cost		$58,000,000				

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SUMMARIZED FINANCIAL DATA (Continued)		ACCUM. PCT. OF EST. FED. COST	PHYSICAL DATA
Allocations to 30 September 1989	$38,052,000		Seawalls: New Concrete Seawall - 1.3 miles
Conference Allowance for FY 1990	845,000		Earthen Levees: New Earth Levees - 15.7 miles
Allocation for FY 1990	1,500,000	1/	Appurtenant Structures:
Allocations through FY 1990	$39,552,000	98	Highway Ramps or Closure Structures - 2
			Tide Control Structure - 1
Allocations Requested for FY 1991	$848,000	100	Relocations:
Scheduled Balance to Complete after FY 1991	0		Railroads (Ramps & Signals)
Unscheduled Balance to Complete after FY 1991	0		Utility Lines

1/ Reflects $82,000 reduction assigned as savings and slippage, $9,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $746,000 reprogrammed to the project.

JUSTIFICATION: The project provides flood protection from hurricane storm tides for the cities of Texas City and La Marque, Texas. The protected area is highly industrialized with a population over 60,000. The project is essentially complete, however, remedial measures are required as approximately 1.7 miles of levee toe that was protected by an eroded sacrifical berm is in critical need of protection to avoid further erosion which threatens the integrity of the entire hurricane protection system and could result in a massive failure of levees if it continues unabated. The scope of work is beyond the limits appropriate for accomplishment under the requirement for local sponsor operation and maintenance.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete repairs to toe of levee	$761,000
Engineering and Design	14,000
Supervision and Administration	73,000
Total	$848,000

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NON-FEDERAL COST: In accordance with the authorizing Acts, the Flood Control Acts of 1958 and 1968 and the Water Resources Development Act of 1974, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Provide lands, easements, and rights-of-way	$ 1,349,000	
Pay 30 percent of costs allocated to flood control not covered by cost of land and work in kind	15,180,000	
Perform work-in-kind	1,071,000	
Bear all cost of operation, maintenance, and replacement of the project		$441,000
Total Non-Federal Costs	$17,600,000	$441,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Local interests, represented by the Commissioners Court of Galveston County by resolution 17 January 1963 furnished assurance that it would comply with the local cooperation requirements. Non-Federal costs are being defrayed with funds from bond issues voted by the taxpayers of Galveston County in 1974, 1959, 1964, and 1971. The local sponsor supports the project and by letter agreement, executed on 4 December 1989, have agreed to provide the local sponsor share of construction of the toe protection.

COMPARISION OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $40,400,000 is an increase of $300,000 over the latest estimate ($40,100,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$170,000
Post Contract Award and Other Estimating Adjustments	130,000
Total	$300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Environmental Protection Agency 11 May 1979.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1960, and for construction in FY 1962.

The Flood Control Act of 1968, which authorized the La Marque-Hitchcock Extension, provided that local interests were to provide firm assurances of local cooperation within three years from the date of the authorizing legislation, or if prior to the end of the three-year period local interests served formal notice that they could not provide the local cooperation, authority for the recommended modification would expire and the project would revert to its original authorization under the Flood Control Act of 1958. Public Law 93-251 extended the time limitation to 1 July 1974. By resolution dated 10 June 1974, the Galveston County Commissioners Court withdrew the assurances of local cooperation for the La Marque-Hitchcock Extension. Therefore, the project reverted to the scope authorized by the Flood Control Act of 1958.

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APPROPRIATION TITLE: Construction, General - Reservoirs

PROJECT: Acequias Irrigation System, New Mexico (Continuing)

LOCATION: There are about one thousand recognized Acequias throughout the state of New Mexico. Most are located in north-central New Mexico in the counties of Mora, Rio Arriba, Santa Fe, San Miguel and Taos.

DESCRIPTION: Protect and restore river diversions and associated canals of up to 400 community acequia systems.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable. 1/

TOTAL BENEFIT - COST RATIO: Not applicable. 1/

INITIAL BENEFIT - COST RATIO: Not applicable. 1/

BASIS OF BENEFIT - COST RATIO: Not applicable. 1/

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST
Estimated Federal Cost		$51,300,000	
Estimated Non-Federal Cost		17,100,000	
Cash Contribution	$17,100,000		
Total Estimated Project Cost		$68,400,000	
Allocations to 30 September 1989		$ 3,678,000	
Conference Allowance for FY 1990		2,000,000	
Allocation for FY 1990		1,972,000 2/	
Allocations through FY 1990		5,650,000	11
Allocation Requested for FY 1991		$ 2,000,000	15
Scheduled Balance to Complete after FY 1991		43,650,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Diversion Structures		
Canals and Ditches	4	Mar 2009

1/ Project was authorized without regard to economic analysis in accordance with Section 1113 of the Water Resources Development Act of 1986.

2/ Reflects reduction of $28,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

Division: Southwestern District: Albuquerque Project: Acequias Irrigation System New Mexico

29 JAN 1990

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JUSTIFICATION: The acequia community ditch systems provide irrigation water to about 160,000 acres on an estimated 12,000 farms. About seventy percent of the farms average less than twenty acres in size and are used for subsistence farming. Acequias have been in existence since the early Spanish Colonization period of the 17th and 18th centuries and represent one of the oldest forms of cooperative institutions in the U.S. They are an integral part of the culture and heritage of New Mexico. Justification for the project is based upon the historic and social significance the Acequias have for the local residents and the major role they play in the overall local economy. Flood damages to the acequia diversion dams and main delivery systems and subsequent interruption of water flow to the systems can have a devastating effect on the irrigators. At the most critical times for irrigation, high flood flows from spring snowmelt at the beginning of the irrigation season and from intense summer thunderstorms during the peak of irrigation cause structural damage or complete loss of ditch structures needed for delivering water to crops.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Rehabilitation of Acequias	$ 1,768,000
Engineering and Design	118,000
Supervision and Administration	114,000
Total	$ 2,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance and Replacement Cost
Pay 25 percent of the costs of Acequias restoration.	$17,100,000	$ 0 1/
Total Non-Federal Cost	$17,100,000	$ 0 1/

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Operation, maintenance and replacement costs historically are the responsibility of each acequia organization.

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Division: Southwestern District: Albuquerque Project: Acequias Irrigation System, New Mexico

29 JAN 1990

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STATUS OF LOCAL COOPERATION: The local sponsor, the State of New Mexico, has enacted legislation whereby the State provides 17-1/2% of the project costs and low interest loans to the local Acequias for the remaining 7-1/2% of the non-Federal share. The State of New Mexico has appropriated, on an annual basis, the funds necessary to meet the requirements of local sponsorship. Local Cooperation Agreements have been signed for funds appropriated in Fiscal Year 1988 and Fiscal Year 1989. Negotiations are underway with the State of New Mexico to obtain a Local Cooperation Agreement for funds appropriated in Fiscal Year 1990. This Local Cooperation Agreement is expected to be executed in June 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $51,300,000 is an increase of $11,300,000 from the latest estimate ($40,000,000) presented to Congress (FY 1988). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$11,300,000
Total	$11,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment is being prepared for each Acequia Restoration Project. A signed Finding of No Significant Impact will be filed with the Environmental Assessment, prior to the issuance of the Notice to Proceed to the contractor, if the restoration activities do not have a significant environmental effect.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in fiscal year 1987. Funds to initiate construction were appropriated in fiscal year 1988. The authorizing legislation provides that the historical acequia systems of the Southwestern United States be considered as public entities, if these systems are chartered by the respective state laws as political subdivisions of that state. The state of New Mexico will act as the local sponsor for all projects within the state.

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APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Cooper Lake and Channels, Texas (Continuing)

LOCATION: The dam will be located at mile 23.2 on the South Sulphur River in northeast Texas near the town of Cooper, Texas, and is upstream from the Wright Patman Reservoir.

DESCRIPTION: The project is a multipurpose reservoir with an earthfill dam, two recreational park areas, and includes levee and channel improvements on the river.

AUTHORIZATION: Flood Control Act of 1955, Water Resources Development Act of 1986, and Energy and Water Development Appropriations Act, 1990.

REMAINING BENEFIT - REMAINING COST RATIO: 3.6 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.8 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 1.13 to 1 at 3-1/4 percent (FY 1958).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in April 1988 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$135,000,000	Entire Project	53	Jun 1994
Future Non-Federal Reimbursement		51,200,000			
Estimated Federal Cost (Ultimate)		83,800,000			
Estimated Non-Federal Cost		51,427,000			
Scheduled Construction	51,427,000				
Other Costs	227,000				
Reimbursement Water Supply	51,200,000				
Total Estimated Project Cost		$135,227,000			

Division: Southwestern District: Fort Worth Project: Cooper Lake and Channels, Texas

29 JAN 1990

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SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 71,710,000	
Conference Allowance for FY 1990	31,000,000	
Allocation for FY 1990	28,155,000 1/	
Allocations through FY 1990	99,865,000	73
Allocation Requested for FY 1991	$ 17,400,000	86
Scheduled Balance to Complete after FY 1991	17,735,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects $2,508,000 reduction assigned as savings and slippage; and $337,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

PHYSICAL DATA

Dam:
- Type: Rolled earthfill
- Height: 45 feet (average)
- Length: 28,070 feet

Service Spillway:
- Length of crest (feet) 700.0
- Crest elevation (feet mean sea level) 446.2
- Uncontrolled ogee weir

Channels:
- Completed work - 37.3 miles
- Remaining work - None

Outlet Works:
- Type: Single conduit 10.5 feet diameter, 530 feet long

Sluices, number and size: 2-10.5 foot by 4.75 foot

Elevation of Invert: 394.0 feet mean sea level

Selector Gates:
- 2-5 foot by 7.0 foot at 430 elevation
- 1-2 foot by 2.5 foot at 414 elevation
- 1-2 foot by 2.5 foot at 422 elevation

Levees:
- Completed work - 48.2 miles
- Remaining work - None

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Division: Southwestern District: Fort Worth Project: Cooper Lake and Channels, Texas

29 JAN 1990

PHYSICAL DATA (Continued)

Relocations:

Roads: (7.2 miles including 2 new bridges)	$2,733,000
Railroads: (Modify 2 bridges)	$ 59,000
Cemeteries and Utility Lines: 5 cemeteries, power lines, telephone lines, gas lines, and water lines	$1,104,000

Reservoir Capacity:

Reserve for sedimentation	37,000 acre-feet
Municipal and industrial water supply storage	273,800 acre-feet
Flood control	130,400 acre-feet
Total	441,200 acre-feet

Lands and Damages:

Acres: 57,653 Total Project
(32,153) Cooper Lake
(25,500) Fish and Wildlife Mitigation Area
Type: Predominantly agriculture
Improvements: Farm units
Includes: Damage to minerals, severance, and resettlement

Roads, Railroads, and Bridges:

Access roads to damsite - 5.4 miles
Public use road across dam - 5.0 miles

JUSTIFICATION: The project will reduce flooding along Sulphur River, its North, Middle, and South Forks; Brushy Creek; and Cuthand Creek in East Texas. The project will protect 12,900 acres of land downstream which would permit more intensified agricultural uses. The maximum flood of record was the May 1982 flood which caused estimated damages of $5,327,000 ($6,900,000 October 1989 prices), of which $1,396,000 in damages would have been prevented by the project. The project will provide for 273,000 acre-feet of water supply storage space and will provide sufficient storage volume to permit conversion of 120,000 acre-feet of flood control space in Wright Patman Lake to water supply storage. The storage conversion is a future determination that will be made after Cooper Lake is complete. Recreation facilities will be provided to accommodate an anticipated 1,555,000 user-days annually. The estimated average benefits, based on October 1987 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$1,011,000
Water Supply	4,904,000
Recreation	2,578,000
Total	$ 8,493,000

Division: Southwestern District: Fort Worth Project: Cooper Lake and Channels, Texas

29 JAN 1990

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FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Mitigation Area Development at White Oak Creek	$ 702,000
Initiate Mitigation Area Development at Cooper Lake	685,000
Continue Lands and Damages for Mitigation Development at White Oak Creek	5,474,000
Continue Embankment, Spillway and Outlet Works	1,006,000
Continue Lands and Damages for Cooper Lake	156,000
Continue Mitigation Boundary Monumentation	275,000
Continue Fencing at White Oak Mitigation	300,000
Continue Cultural Resources Preservation	287,000
Continue Recreation Facilities	1,590,000
Complete Project Building	567,000
Complete Clearing Reservoir Area	1,528,000
Complete Roads for Embankment	2,262,000
Complete West Delta Water Supply	132,000
Complete Revegetation	171,000
Complete Boundary Monumentation	25,000
Complete Levees Downstream	161,000
Engineering and Design	730,000
Supervision and Administration	1,349,000
Total	$ 17,400,000

NON-FEDERAL COST: In accordance with the authorizing acts, the Flood Control Act of 1955 and the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operations, Maintenance and Replacement Costs
Provide lands, easements, and rights-of-way pertaining to the channel and levee flood control features; modify or relocate buildings, utilities, roads, bridges (except railroad bridges) and other facilities, where necessary in the construction of the channel and levee features; and bear all costs of operation and maintenance of channel and levee features.	$ 227,000	$ 62,000

Division: Southwestern District: Fort Worth Project: Cooper Lake and Channels, Texas

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Requirements of Local Cooperation (Continued)	Payments During Construction and Reimbursement	Annual Operations, Maintenance and Replacement Costs
Pay all costs allocated to municipal and industrial water supply, which will be reimbursed within the life of the project, and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	51,200,000	234,000
Bear all costs of operation, maintenance, and replacement of recreation facilities.		740,000
Total Non-Federal Costs	$ 51,427,000	$ 1,036,000

The non-Federal sponsors have also agreed to repay their share of costs allocated to municipal and industrial water supply over the life of the project.

STATUS OF LOCAL COOPERATION: All necessary original assurances from local interests have been supplied. Requests were made of all county commissioners courts involved to execute supplemental assurances covering the provisions of Public Law 91-646 pertaining to levee construction and channel improvement in August 1973. Supplemental assurances were received from the County Commissioners Courts of Franklin, Red River, Titus, and Hopkins Counties and were approved on behalf of the United States on 27 November 1973, 25 June 1974, 15 July 1974, and 23 July 1974, respectively. Local cooperation and assurances for the remaining unconstructed levee and channel work deleted with the currently recommended plan are no longer required. Completed levees and channels will be operated and maintained in accordance with current agreements or as subsequently modified. All necessary contracts for municipal and industrial water supply storage space with local interests and the Texas Water Development Board were signed and approved by the Secretary of the Army on 11 July 1968. Subsequent withdrawal of the Texas Water Development Board's participation resulted in modification of the existing contracts with the City of Irving, North Texas Municipal Water District and the Sulphur River Municipal Water District to assume additional water supply costs. The modified contracts were approved by the Acting Assistant Secretary of the Army (Civil Works) on 4 November 1977. A recreation contract with the Texas Parks and Wildlife Department was approved by the Assistant Secretary of the Army (CW) on 7 November 1988. A meeting was held on 24 October 1989 in Austin, Texas, between the Texas Parks and Wildlife Department and the Department of the Army to discuss the expenditure of $5,000,000 appropriated in the Energy and Water Development Appropriations Act, 1990, for recreation facilities in addition to those covered by the existing contract.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $135,000,000 is an increase of $5,000,000 from the latest estimate ($130,000,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$(-) 11,000
Modifications directed by P.L. 101-101	5,000,000
Post Contract Award and Other Estimating Adjustments	1,896,000
Price Escalation on Real Estate	(-) 1,885,000
Total	$ 5,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 24 June 1977. On 8 December 1978 the U.S. District Court for the Eastern District of Texas declared that the Environmental Impact Statement was legally insufficient. A Supplemental Environmental Impact Statement to correct the deficiencies was prepared and filed with the Environmental Protection Agency in March 1981. On 22 March 1983 an Amended Memorandum Opinion and a Permanent Injunction against the construction of Cooper Lake was issued. On 16 July 1984 the New Orleans Fifth Circuit Court of Appeals reversed the District Courts Opinion and dissolved the injunction against the construction of Cooper Lake.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1957 and for construction in Fiscal Year 1958. Funds to resume construction were appropriated in Fiscal Year 1986. Wildlife mitigation measures, currently estimated to be $22,891,000, were authorized by the Water Resources Development Act of 1986.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Joe Pool Lake, Texas (Continuing)

LOCATION: The Joe Pool dam is located at mile 11.2 on Mountain Creek, a right bank tributary to the West Fork of the Trinity River, in Dallas County, Texas.

DESCRIPTION: The project is a multipurpose reservoir with an earthfill dam and recreational park areas.

AUTHORIZATION: River and Harbor Act of 1965.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is nearing completion.

TOTAL BENEFIT-COST RATIO: 3.8 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.8 to 1 at 3-1/4 percent (FY 1975).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in December 1974 at 1974 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$188,300,000	Entire Project	99	May 1993
Future Non-Federal Reimbursement		57,400,000			
Estimated Federal Cost (Ultimate)		130,900,000			
Estimated Non-Federal Cost		68,000,000			
Cash Contributions	$10,600,000				
Reimbursements	57,400,000				
Water Supply	$48,600,000				
Recreation	8,800,000				
Total Estimated Project Cost		$198,900,000			

Division: Southwestern District: Fort Worth Project: Joe Pool Lake, Texas

29 JAN 1990

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SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST	
Allocations to 30 September 1989	185,171,000		
Conference Allowance for FY 1990	351,000		
Allocation for FY 1990	2,051,000 1/		1/ Reflects reduction of $34,000 assigned as savings and slippage, $4,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,738,000 reprogrammed to the project.
Allocations through FY 1990	187,222,000	99	
Allocation Requested for FY 1991	600,000	99	
Scheduled Balance to Complete after FY 1991	478,000		
Unscheduled Balance to Complete after FY 1991	0		

PHYSICAL DATA

Dam

Type - Rolled earthfill
Height - 108.5 feet (max above streambed)
Length - 22,360 feet (including 50 feet of spillway)

Spillway

Type - Uncontrolled Broadcrested
Length - 50 feet
Design Capacity
Max Pool - 11,900 cubic feet per second

Reservoir Capacity

Flood Control	- 123,100	acre-feet
Water Supply	- 142,900	acre-feet
Sediment Reserve	- 38,000	acre-feet
Total	304,000	acre-feet

Relocations

Roads	- 9.4 miles ($20,194,000)
Railroads	- 1.6 miles ($2,928,000)
Cemeteries, Utilities, and Structures	- ($2,075,000)

Lands

Fee	- 15,175	acres
Flowage Easements	- 1,964	acres
Total	17,139	acres

Type - Predominantly agriculture

JUSTIFICATION: The project is an authorized element in the plan for improvement of the Trinity River Basin. Flood control storage on Mountain Creek will reduce flood damages in the Dallas area. The project will provide: (a) a high level of flood protection to about 33,000 acres, all urban, located immediately below the dam where property values are estimated at $1,395,000,000, based on October 1989 prices, and protection in varying degrees to more than 500,000 additional flood plain acres along Mountain Creek and the Trinity River; (b) water supply of 14.2 million gallons per day; and (c) recreation of some 6,300,000 recreation days (3,800,000 initially) annually. The maximum flood of record occurred in May/June 1989 during which $24,543,000 in damages were prevented by the completed project. The duration of flooding varies from about two days in the vicinity of the damsite to about 14 days in the lower reaches of the Trinity River. The estimated average annual benefits, based on July 1974 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$ 4,582,000
Water Supply	5,196,000
Recreation	5,515,000
Total	$15,293,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete Land Acquisition	$ 55,000
Continue Cultural Resource Mitigation	460,000
Engineering and Design	35,000
Supervision and Administration	50,000
Total	$600,000

NON-FEDERAL COST: In accordance with authorizing act, the Rivers and Harbors Act of 1965, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay all costs allocated to municipal and industrial water supply and bear all costs of operations, maintenance, and replacement of municipal and industrial water supply facilities.	$48,600,000	$ 228,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operations, maintenance, and replacement of recreation facilities.	19,400,000	1,047,000
Total Non-Federal Costs	$68,000,000	$1,275,000

The non-Federal sponsor, Trinity River Authority, has also agreed to repay its share of construction costs for municipal and industrial water supply, and recreation over the life of the project. The non-Federal sponsor, the State of Texas, will pay $10,600,000 cash contributions and work-in-kind for separable costs allocated to recreation concurrently with construction of the Cedar Hill State Park.

Division: Southwestern District: Fort Worth Project: Joe Pool Lake, Texas

29 JAN 1988

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STATUS OF LOCAL COOPERATION: The Trinity River Authority, a State agency, by letters dated 20 March 1969 and 18 July 1969 certified assurance of the capability and willingness to provide the items required of local interests. By agreement dated 19 April 1972, the Trinity River Authority provided assurances incorporating the relocation assistance and real property acquisition policies of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Federal Water Project Recreation Act of 1965, and written agreement requirement of Section 221 of the River and Harbor Act of 1970. These assurances were confirmed by letter of 3 May 1973. The water supply contract was executed by the Trinity River Authority on 29 September 1976 and approved by the Acting Assistant Secretary of the Army on 15 June 1977. The recreation contract with Trinity River Authority was approved by Acting Assistant Secretary of the Army on 15 June 1977. This contract was modified on 28 March 1979 to allow the Corps to participate with the State of Texas and approved by the Assistant Secretary of the Army on 21 March 1980. The contract with the State of Texas for recreation development was approved by the Assistant Secretary of the Army on 21 March 1980.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $188,300,000 is a increase of $3,700,000 from the latest estimate ($184,600,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 50,000
Post Contract Award and Other Estimating Adjustments	3,642,000
Price Escalation on Real Estate	8,000
Total	$ 3,700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with Council on Environmental Quality on 2 December 1973.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1968. Funds were appropriated in Fiscal Year 1973 for a restudy of alternatives on Joe Pool Lake. Funds to initiate construction were appropriated in Fiscal Year 1975. Land acquisition was initiated in September 1977 and construction was initiated in March 1979.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Ray Roberts Lake, Texas (Continuing)

LOCATION: Ray Roberts Dam is located at river mile 60.0 on the Elm Fork of the Trinity River in Denton County, Texas and 30 miles upstream from the existing Lewisville Dam.

DESCRIPTION: The project is a multipurpose reservoir with an earthfill dam and recreational park areas.

AUTHORIZATION: River and Harbor Act of 1965.

REMAINING BENEFIT-REMAINING COST RATIO: 3.5 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 2.0 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 3-1/4 percent (FY 1975).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in August 1980 at 1979 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$291,000,000	Entire Project	89	Jun 1992
Scheduled Construction	$286,500,000				
Unscheduled Construction	4,500,000				
Future Non-Federal Reimbursement		186,000,000			
Scheduled Construction	$183,750,000				
Unscheduled Construction	2,250,000				
Estimated Federal Cost (Ultimate)		105,000,000			
Scheduled Construction	$102,750,000				
Unscheduled Construction	2,250,000				

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SUMMARIZED FINANCIAL DATA (Continued)

			ACCUM. PCT. OF EST. FED. COST	
Estimated Non-Federal Cost		$186,000,000		
Scheduled Construction	$183,750,000			
Reimbursements	$183,750,000			
Water Supply	$168,500,000			
Recreation	15,250,000			
Unscheduled Construction	$ 2,250,000			
Reimbursement	$ 2,250,000			
Recreation	$ 2,250,000			
Total Estimated Scheduled Construction Cost		$286,500,000		
Total Estimated Unscheduled Construction Cost		4,500,000		
Total Estimated Project Cost		$291,000,000		
Allocations to 30 September 1989		$262,830,000		
Conference Allowance for FY 1990		19,000,000		
Allocations for FY 1990		16,427,000	1/	
Allocations through FY 1990		279,257,000	96	
Allocation Requested for FY 1991		4,900,000	98	
Scheduled Balance to Complete after FY 1991		2,343,000		
Unscheduled Balance to Complete after FY 1991		4,500,000		

1/ Reflects $1,833,000 reduction assigned as savings and slippage, $195,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $545,000 reprogrammed from the project.

PHYSICAL DATA

Dam	Reservoir Capacity		Ray Roberts Lake Lands	
Type - Rolled earth	Flood Control -	260,800 acre-feet	Fee -	46,038 acres
Height - 141 feet (max above streambed)	Water Supply -	749,200 acre-feet	Flowage easements -	2,302 acres
Length - 14,965 feet	Sediment Reserve -	54,600 acre-feet		
	Total	1,064,000 acre-feet	Total	48,340 acres

Division: Southwestern District: Fort Worth Project: Ray Roberts Lake, Texas

29 JAN 1990

Spillway	Relocations	
Type - Uncontrolled Broadcrested	Roads - 42.5 miles	($37,597,000)
Length - 100 feet	Railroads - 2.7 miles	($ 6,800,000)
Design Capacity	Cemeteries, Utilities,	
(Max Pool) - 14,500 cubic feet per second	and Structures -	($12,120,000)

Type - Predominantly agriculture
Improvement - Varied farm and ranch units
Lewisville Lake Lands
Fee - 463 acres

JUSTIFICATION: The project is an authorized element in the plan of improvement of the Trinity River Basin. The flood control storage in Ray Roberts Lake will allow reallocation of storage in the lake behind Lewisville Dam downstream to increase storage allocated to water supply. The project will provide 74.3 million gallons per day for municipal and industrial water supply and satisfy recreation needs of 6,000,000 user days annually (includes increases due to Lewisville Modification). The estimated average annual benefits, based on October 1979 price levels are as follows:

Annual Benefits	Amount
Water Supply	$10,246,000
Recreation	6,243,000
Total	$16,489,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Land Acquisition	$ 759,000
Continue Recreation Facilities at Ray Roberts Lake	2,878,000
Continue Cultural Resource Mitigation	150,000
Complete Boundary Delineation at Lewisville Lake	123,000
Initiate and Complete Spillway Repairs	76,000
Engineering and Design	170,000
Supervision and Administration	744,000
Total	$ 4,900,000

NON-FEDERAL COST: In accordance with the authorizing act, the Rivers and Harbors Act of 1965, the non-Federal sponsor must comply with the requirements listed below.

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Requirements of Local Cooperation	Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Pay all costs allocated to municipal and industrial water supply, which will be reimbursed within the life of the project, and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	$168,500,000	$ 274,000
Pay one-half of the separable costs allocated to recreation, which will be reimbursed within the life of the project, and bear all costs of operation, maintenance, and replacement of recreation facilities.	17,500,000	1,216,000
Total Non-Federal Costs	$186,000,000	$1,490,000

The non-Federal Sponsor has also agreed to repay its share of the construction costs over the life of the project.

STATUS OF LOCAL COOPERATION: The cities of Dallas and Denton, Texas, were designated as co-sponsors of the project by the Texas Water Rights Commission on 4 June 1969. Both cities have signed formal assurances, Dallas on 6 January 1975 and Denton on 18 September 1974, that they would provide the items required by local interests. Updated resolutions were passed by the cities of Dallas and Denton on 30 January 1980 and 22 January 1980, respectively. Water supply and recreation contracts with the cities of Dallas and Denton were approved by the Assistant Secretary of the Army on 16 September 1980.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $291,000,000 is a decrease of $2,000,000 from the latest estimate ($293,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	(-)$ 864,000
Post Contract Award and Other Estimating Adjustments	(-) 1,155,000
Price Escalation on Real Estate	19,000
Total	(-)$2,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 4 March 1974. An updated supplement was filed on 18 September 1975.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1970 and for initiation of construction in Fiscal Year 1975. Land acquisition was initiated in September 1980 and construction was initiated in September 1981. A post-authorization change report for adding a Greenbelt corridor between Ray Roberts Dam and Lewisville Lake was approved by the Secretary of the Army (Civil Works) and sent to Congress recommending authorization.

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Division: Southwestern

District: Fort Worth

Project: Ray Roberts Lake, Texas

29 JAN 1990

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APPROPRIATION TITLE: Construction, General - Multiple Purpose (Including Power)

PROJECT: Beaver Lake, Arkansas (Water Quality Enhancement) (Continuing)

LOCATION: Beaver Dam is located on the White River 609.0 miles above its mouth, in Carroll County in northwest Arkansas near the city of Rogers.

DESCRIPTION: The project to be implemented at Beaver Lake includes implementation of "best management practices" for controlling non-point source pollution. Best management practices will be determined on a case-by-case basis in response to the specific non-point source pollution problem. Best management practices includes improved solid waste handling and treatment methods, erosion control features and diversion structures to prevent contamination of rainfall runoff. Also, a water quality monitoring system will be developed to check the quality of the lake water and effectiveness of best management practices.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFITS-REMAINING COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			ACCUM PCT. OF EST. FED. COST
Estimated Federal Cost		$4,820,000	
Estimated Non-Federal Cost		1,607,000	
Cash Contributions	$1,607,000		
Total Estimated Project Cost		$6,427,000	
Allocations to 30 September 1989		0	
Conference Allowance for FY 1990		1,100,000	
Allocation for FY 1990		1,085,000 1/	
Allocations Through FY 1990		1,085,000	23
Allocation Requested for FY 1991		300,000	29
Scheduled Balance to Complete after FY 1991		3,435,000	
Unscheduled Balance to Complete after FY 1991		0	

STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	0	Sep 1994

1/ Reflects reduction of $15,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

Division: Southwestern District: Little Rock Project: Beaver Lake, Arkansas (Water Quality Enhancement)

29 JAN 1990

JUSTIFICATION: The water quality of Beaver Lake is increasingly in violation of the National Primary Drinking Water Standards due to excessive nutrients and fecal coliform bacteria. Local residents urged passage of this project in order to solve this problem. With available funds the Secretary, cooperating with the Soil Conservation Service, Environmental Protection Agency, and in consultation with appropriate State and local agencies, conducted a one-year comprehensive study of the Beaver Lake reservoir to identify measures that will optimize achievement of the project's purposes while preserving and enhancing the quality of the reservoir's water. The Congress directed the Secretary in FY 1990 to undertake a project at Beaver Lake to determine the effectiveness of measures identified in such study for preserving and enhancing the quality of the reservoir's water for current and future users.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Best Management Practices	$230,000
Continue Water Quality Monitoring	70,000
Total	$300,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resource Development Act of 1986, the non-Federal sponsor must contribute 25 percent of the cost of the project.

STATUS OF LOCAL COOPERATION: The local sponsor, the Arkansas Soil and Water Commission, understands the non-Federal requirement. It is expected that the Local Cooperation Agreement will be executed in July 1990. The current non-Federal cost is shown as a cash contribution of $1,607,000. The actual breakdown of non-Federal cost between cash and work in kind will be determined during negotiation of the Local Cooperation Agreement which is scheduled to be executed in July 1990. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $4,820,000 is an increase of $995,000 from the latest estimate ($3,825,000) presented to Congress (FY 1986). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$995,000
Total	$995,000

OTHER INFORMATION: Funds to initiate studies required by Section 903 of the Water Resource Development Act of 1986 were appropriated in Fiscal Year 1988. Funds to initiate construction were appropriated in Fiscal Year 1990.

Division: Southwestern District: Little Rock Project: Beaver Lake, Arkansas (Water Quality Enhancement)

29 JAN 1990

SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation

a. Channels and Harbors.

The budget estimate of $41,901,000 provides for essential maintenance work on 12 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the coastal navigation channels, harbors and anchorages by means of dredging, constructing bulkheads and spoil disposal areas, snagging, and repairing channel stabilization works, navigation structures, and harbor jetties, all as authorized in the laws pertaining to river and harbor projects.

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Texas				
Brazos Island Harbor	1,611,000	1,720,000	3,025,000	Variation in dredging requirements.
Channel to Harlingen	734,000	0	720,000	Periodic dredging.
Channel to Port Mansfield	513,000	550,000	600,000	Variation in dredging requirements.
Channel to Victoria	1,686,000	477,000	1,725,000	Variation in dredging requirements.
Corpus Christi Ship Channel	2,705,000	5,100,000	5,037,000	Variation in dredging requirements.
Freeport Harbor	3,404,000	96,000	2,835,000	Variation in dredging requirements.
Galveston Harbor and Channel	2,532,000	279,000	41,000	Variation in dredging requirements.
Gulf Intracoastal Waterway	11,921,000	11,917,000	13,185,000	Variation in dredging requirements.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

a. Channels and Harbors. (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Texas (Cont'd)				
Houston Ship Channel	5,829,000	8,552,000	6,697,000	Variation in dredging requirements.
Matagorda Ship Channel	2,669,000	1,167,000	1,734,000	Variation in dredging requirements.
Sabine-Neches Waterway	2,216,000	6,002,000	6,282,000	Variation in dredging requirements.
Trinity River and Tributaries	191,000	588,000	20,000	Periodic dredging.
Other Projects Maintained	1,714,000	1,454,000		
Total Channels and Harbors	37,725,000	37,902,000	41,901,000	

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. Navigation (Cont'd)

b. Locks and Dams.

The budget estimate of $22,403,000 provides for operation and essential repairs on one project. Included are: labor, supplies, materials and parts for day-to-day functioning; and periodic dredging, maintenance, repairs, or replacements of channels and structures. The requested amount also includes application of special recreation use fees for recreation areas.

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Arkansas				
McClellan-Kerr Arkansas River Navigation System, Arkansas and Oklahoma	23,662,000	20,181,000	22,403,000	Installed tow haulage equipment, repaired dikes in Pool 14 and painted W. D. Mayo tainter gates in FY89. Construct bank stabilization structures in FY91.
Total - Locks and Dams	23,662,000	20,181,000	22,403,000	
TOTAL - NAVIGATION	61,387,000	58,083,000	64,304,000	

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control

a. Reservoirs.

The budget estimate of $75,414,000 provides for the operation and ordinary maintenance of 70 projects named in the list which follows, and the scheduling of reservoir flood control operations in the Southwestern Division. Included are: labor, supplies, materials and parts for day-to-day functioning. The requested amount also includes funds to complete one major rehabilitation project, and the application of special recreation use fees for recreation areas.

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Arkansas				
Blue Mountain Lake	747,000	682,000	877,000	Convert vault toilet to waterborne in FY91.
DeQueen Lake	828,000	788,000	974,000	Convert vault toilet to waterborne in FY91.
Dierks Lake	868,000	809,000	824,000	
Gillham Lake	848,000	855,000	851,000	
Millwood Lake	1,574,000	1,394,000	2,229,000	Repaired stilling basin training wall joints in FY89. Stabilize upstream embankment berm in FY91.
Nimrod Lake	1,105,000	971,000	1,072,000	Converted vault toilet to waterborne and purchased Sunlight Road repair materials in FY89. Convert vault toilet to waterborne in FY91.

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Colorado				
John Martin Reservoir	2,045,000	1,298,000	2,021,000	Completed replacement of two waterborne toilets and constructed boat ramp in FY89. Rehabilitate tainter gate controls in FY91.
Trinidad Lake	364,000	520,000	701,000	Provide increased maintenance of project buildings in FY90. Prepare Historic Property Management Plan and perform intake structure inspection in FY91.
Kansas				
Council Grove Lake	847,000	679,000	1,002,000	Repaired oxidation ponds and recreation facilities in FY89. Construct waterborne toilet with shower in FY91.
El Dorado Lake	542,000	418,000	450,000	Performed sediment survey in FY89.
Elk City Lake	1,011,000	672,000	723,000	Repaired outlet channel in FY89.
Fall River Lake	1,055,000	844,000	976,000	Repaired roads in FY89. Repair unsafe recreation facilities in FY91.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Kansas (Cont'd)				
John Redmond Dam and Reservoir	1,558,000	964,000	1,100,000	Installed toe drain in FY89. Remove drift and debris from main embankment in FY91.
Marion Lake	892,000	882,000	740,000	Built shower/toilet building in FY89. Construct oxidation pond in FY90.
Pearson-Skubitz Big Hill Lake	1,058,000	851,000	755,000	Replaced roof on project office building in FY89. Remove drift and debris from structure in FY90.
Toronto Lake	218,000	316,000	388,000	Performed sediment survey in FY90. Remove drift and debris from main embankment in FY91.
Missouri				
Clearwater Lake	5,263,000	1,893,000	1,950,000	Continued major rehabilitation at $3,655,000 in FY89 and $508,000 in FY90.

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
New Mexico				
Abiquiu Dam	3,865,000	2,506,000	1,233,000	Constructed adits in FY89 and FY90.
Cochiti Lake	1,317,000	1,560,000	1,494,000	Stabilize slopes for Sile Canal in FY90.
Conchas Lake	905,000	901,000	869,000	
Galisteo Dam	211,000	162,000	216,000	Performed dam safety assurance study in FY89. Repair roads in FY91.
Jemez Canyon Dam	371,000	627,000	400,000	Rehabilitate project bridge in FY90.
Santa Rosa Dam & Lake	732,000	598,000	705,000	Repaired waterline, installed fencing and performed sediment survey in FY89. Repair main waterline and project roads in FY91.
Two Rivers Dam	281,000	247,000	423,000	Performed dam safety assurance study in FY89. Perform periodic inspection and cultural resource survey in FY91.
Oklahoma				
Arcadia Lake	418,000	371,000	390,000	Performed periodic inspection in FY89.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Oklahoma (Cont'd)				
Birch Lake	782,000	678,000	771,000	Performed sediment survey in FY89. Repair tainter gates and associated equipment in FY91.
Candy Lake	19,000	13,000	30,000	Performed boundary monumentation in FY89. Construct fences to protect government property in FY91.
Canton Lak.	1,408,000	1,303,000	1,409,000	
Copan Lake	902,000	721,000	919,000	Completed recreation facilities in FY89. Repair tainter gate side seals in FY91.
Fort Supply Lake	1,022,000	857,000	792,000	Built shower/toilet building and repaired electrical lines in FY89.
Great Salt Plains Lake	1,038,000	387,000	499,000	Installed toe drain in FY89. Reroof project office building in FY91.
Heyburn Lake	809,000	714,000	589,000	Built shower/toilet building in FY89. Repair recreation roads in FY90.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Oklahoma (Cont'd)				
Hugo Lake	1,401,000	1,118,000	1,281,000	Repaired recreation facilities in FY89. Repair recreation facilities in FY91.
Hulah Lake	597,000	462,000	770,000	Prepared water control manual in FY89. Repair and replace relief wells in FY91.
Kaw Lake	1,817,000	1,629,000	1,790,000	Completed road repair contract in FY89.
Oologah Lake	1,139,000	810,000	1,206,000	Repaired spillway outlet slopes in FY89. Perform sediment survey in FY91.
Optima Lake	564,000	487,000	556,000	Resurfaced embankment road in FY89. Repair water treatment plant in FY91.
Pensacola Reservoir - Lake O' the Cherokees	10,000	7,000	10,000	Performed additional real estate compliance inspections in FY89 and in FY91.
Pine Creek Lake	1,012,000	755,000	876,000	Repaired shoreline erosion in FY89. Construct waterborne toilet and correct erosion in FY91.

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Oklahoma (Cont'd)				
Sardis Lake	890,000	715,000	856,000	Completed additional recreation facilities, removed drift and vegetation from main embankment in FY89. Repair cracks and seal roads in FY91.
Skiatook Lake	993,000	1,187,000	1,727,000	Install embankment collector drains in FY90. Grout left abutment in FY91.
Waurika Lake	1,204,000	986,000	1,240,000	Installed piezometers along toe of dam in FY89. Clean and repair relief wells in FY91.
Wister Lake	1,752,000	6,475,000	6,305,000	Includes major rehabilitation at $5,889,000 in FY90 and $4,471,000 in FY91. See Justification following this table.
Texas				
Aquilla Lake	529,000	658,000	505,000	Install seepage monitoring system in FY90.
Arkansas-Red River Basins Chloride Control (Area VIII)	774,000	516,000	651,000	Performed periodic inspection in FY89. Increase pumping plant maintenance in FY91.
Bardwell Lake	1,195,000	971,000	876,000	Resurfaced embankment road in FY89. Modify entrance complex to park area in FY90.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Texas (Cont'd)				
Belton Lake	1,708,000	1,548,000	1,731,000	Resurfaced park roads in FY89. Replace recreation signs in FY91.
Benbrook Lake	1,243,000	1,216,000	1,254,000	
Buffalo Bayou and Tributaries	1,296,000	1,447,000	1,497,000	Increased cost of water control management and data collection in FY90 and FY91.
Canyon Lake	1,180,000	1,206,000	1,008,000	Restored flood damaged campsites in FY89. Repaired shoreline flood damage in FY90.
Cooper Lake and Channels	0	0	137,000	First partial year of operation in FY91.
Ferrell's Bridge Dam - Lake O' the Pines	1,694,000	1,460,000	1,510,000	Corrected sanitary deficiencies in FY89.
Granger Dam and Lake	1,112,000	1,382,000	1,040,000	Resurface main embankment road in FY90.
Grapevine Lake	1,921,000	1,484,000	1,605,000	Paved main embankment road shoulder and resurfaced park roads in FY89.
Hords Creek Lake	773,000	648,000	655,000	Repainted equipment in outlet works and repaired rest rooms in FY89.

SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Texas (Cont'd)				
Joe Pool Lake	539,000	436,000	519,000	Performed periodic inspection in FY89. Repair main embankment erosion in FY91.
Lake Kemp	151,000	156,000	178,000	Perform periodic inspection in FY91.
Lavon Lake	1,813,000	1,674,000	1,970,000	Replace restrooms in FY91.
Lewisville Dam	2,121,000	3,521,000	1,903,000	Modified entrance complex to three recreation areas in FY89. Relocate recreation facilities in FY90.
Navarro Mills Lake	1,312,000	1,025,000	1,052,000	Corrected sanitary deficiencies in FY89.
North San Gabriel Dam and Lake Georgetown	1,173,000	1,067,000	1,026,000	
O. C. Fisher Dam and Lake	860,000	857,000	777,000	Eradicated growth on embankment in FY89 and FY90.
Pat Mayse Lake	809,000	772,000	1,081,000	Repair recreation facilities to eliminate unsafe conditions in FY91.

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

a. Reservoirs. (Cont'd)

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Texas (Cont'd)				
Proctor Lake	1,401,000	1,156,000	892,000	Corrected sanitary deficiencies in FY89. Modify entrance complex to recreation area in FY90.
Ray Roberts Lake	460,000	536,000	535,000	Perform post impoundment seepage studies in FY90. Establish wildlife food plots in FY91.
Somerville Lake	1,582,000	1,742,000	2,236,000	Repair gate stems and guides in FY90. Resurface project storage area in FY91.
Stillhouse Hollow Dam	1,390,000	1,152,000	1,396,000	Resurfaced recreation roads in FY89. Repair flood gates in FY91.
Waco Lake	1,679,000	1,493,000	1,573,000	Resurfaced park roads in FY89.
Wallisville Lake Project	236,000	213,000	402,000	Perform boundary surveys and repair fence in FY89 and FY91.
Wright Patman Dam and Lake	1,735,000	1,438,000	1,734,000	Constructed mono-rail hoist and bulkhead in FY89. Provide instrumentation for outlet works structure in FY91.
Scheduling Reservoir Operations	869,100	876,000	682,000	Increased cost of water control management and data collection in FY 89 and FY 90.
Total - Reservoirs	77,837,000	71,762,000	75,414,000	

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. Flood Control (Cont'd)

b. Channel improvement, inspection, and miscellaneous maintenance.

The budget estimate of $616,000 provides for inspection of completed work and miscellaneous maintenance during the budget year, including maintenance of data collection and testing stations for potential control of chloride in groundwater.

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Estelline Spring Experimental Project, Texas	5,000	4,000	8,000	Performed additional maintenance on ring dikes in FY89 and FY91.
Inspection of Completed Works	474,000	597,000	608,000	Increase inspections in FY90 and FY91.
Total Channel Improvements, Inspections, and Miscellaneous Maintenance	479,000	601,000	616,000	
TOTAL - FLOOD CONTROL	78,316,000	72,363,000	76,030,000	

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects

The budget estimate of $70,878,000 provides for the operation and maintenance of 18 multiple purpose projects named in the list which follows. These projects have a presently planned operation capacity of 1,726,800 kilowatts. Included are funds for continuation of construction of the major rehabilitation of one project. Annual requirements are for the operation and ordinary maintenance of project facilities, labor, supplies, materials, and parts required for the day-to-day functioning. The requested amount also includes application of special recreation use fees for recreation areas.

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Arkansas				
Beaver Lake	3,133,000	9,103,000	14,718,000	Initiated major rehabilitation (cut-off wall) at $221,000 in FY89. Includes Major Rehabilitation at $6,212,000 in FY90 and $10,698,000 in FY91. See justification following this table.
Bull Shoals Lake	6,228,000	3,656,000	4,424,000	Replaced power circuit breakers and transformer in FY89. Design replacement of powerplant remote controls in FY91.
Dardanelle Lock and Dam	4,695,000	3,715,000	4,917,000	Purchased required flowage easements in FY89. Install microwave link to Ozark-Jeta Taylor powerhouse in FY91.
Greers Ferry Lake	4,744,000	3,787,000	4,202,000	Replaced circuit breakers and excitation system in FY89. Design replacement of power plant remote controls in FY91.

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Arkansas (Cont'd)				
Norfork Lake	3,231,000	2,368,000	4,082,000	Replaced circuit breakers/switchgear in FY89. Design replacement of powerplant remote controls and repair station service turbine in FY91.
Ozark-Jeta Taylor Lock Dam	4,674,400	3,671,000	3,522,000	Painted tainter/powerplant intake gates and performed turbine shaft study in FY89.
Missouri				
Table Rock Lake	5,129,000	3,605,000	4,749,000	Replaced generator excitation and modified powerplant controls in FY89. Replace powerplant remote controls and repair station service turbine runner in FY91.
Oklahoma				
Broken Bow Lake	1,632,000	1,436,000	1,641,000	Installed circuit breakers in FY89. Replace annunciator equipment in FY91.
Eufaula Lake	3,664,000	3,096,000	3,647,000	Purchased additional land lost by erosion in FY89. Stop pollution from abandoned coal mine in FY91.
Fort Gibson Lake	3,196,000	2,660,000	3,018,000	Replaced switchgear and cables in FY89. Determine distribution of contaminated sediment in FY91.
Keystone Lake	2,909,200	2,297,000	2,188,000	Replaced transformers in FY89.

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. Multiple Purpose Power Projects (Cont'd)

Project	OBLIGATIONS Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Oklahoma (Cont'd)				
Robert S. Kerr Lock and Dam and Reservoir	4,602,000	3,345,000	3,149,000	Repaired throat rings on power units 3 and 4 and painted tainter gates in FY89 and FY90.
Tenkiller Ferry Lake	2,768,000	2,741,000	2,854,000	
Webbers Falls Lock and Dam	2,421,000	1,941,000	2,865,000	Repaired log boom, access road and dike in FY89. Repair navigation lock seals, valves and gates in FY91.
Texas				
Denison Dam - Lake	5,366,000	4,088,000	4,314,000	Repaired shoreline erosion and park roads in FY89.
Sam Rayburn Dam and Reservoir	2,294,000	2,551,000	2,649,000	Replace generator heat exchangers and repair flood gates in FY90. Repair turbine cavitation in FY91.
Town Bluff Dam , B. A. Steinhagen Lake and Robert Douglas Willis Hydropower Project	1,166,000	1,358,000	1,167,000	Replace tainter gate hoist in FY90.
Whitney Lake	2,721,000	2,679,000	2,772,000	
TOTAL - MULTIPLE POWER PROJECTS	64,573,000	58,097,000	70,878,000	

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SOUTHWESTERN DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. Protection of Navigation

The budget estimate of $60,000 provides for accomplishing the work essential to project condition surveys on some projects for which maintenance is not scheduled in the budget year.

	OBLIGATIONS			
Project	Actual FY 89 ($)	Estimated FY 90 ($)	Estimated FY 91 ($)	Explanation of Major Changes
Project Condition Surveys	80,000	57,000	60,000	
TOTAL - PROTECTION OF NAVIGATION	80,000	57,000	60,000	
GRAND TOTAL - SOUTHWESTERN DIVISION	204,356,000	188,600,000	211,272,000	

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29 JAN 1990

APPROPRIATION TITLE: Operation and Maintenance - Major Rehabilitation

PROJECT: - Wister Lake, Oklahoma (Continuing)

LOCATION: The project is located on the Poteau River about 2 miles south of Wister, Oklahoma, and about 7 miles northwest of Heavener, Oklahoma in LeFlore County.

DESCRIPTION: The plan of improvement consists of modifying the existing embankment with an upstream slurry cut-off trench, and a downstream drainage blanket and toe drain system with additional fill material to protect the drain system. Damage to the spillway will be repaired.

AUTHORIZATION: Flood Control Act of 1938.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable because monetary benefits have not been quantified.

INITIAL BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	$11,300,000				
Future Non-Federal Reimbursement	1/		Entire Project	10	Sep 1991
Estimated Federal Cost (Ultimate)	1/				
Estimated Non-Federal Cost	1/				
Scheduled Construction 1/					
Reimbursement 1/					
Water Supply					
Total Estimated Project Cost	$11,300,000				

1/ See "STATUS OF LOCAL COOPERATION" paragraph.

Mr. BEVILL. The Chair recognizes Mr. Myers.

Mr. MYERS. Since two of our colleague's Congressional districts lie within this division area, I yield to the one who is here.

Mr. BEVILL. Mrs. Boggs.

Mrs. BOGGS. Thank you, Mr. Chairman.

Thank you for your presentation. I too yield my time to Mr. Chapman.

Mr. CHAPMAN. Thank you.

General Lee, I appreciate your fine presentation. I would like to follow up, if we could, on some of our conversations of yesterday when we had an opportunity to visit.

NEW STARTS

The Corps' 1991 budget, contains no new reconnaissance studies or new construction starts. In your request, were any new reconnaissance studies sent up as a part of your original request in preparation of the budget?

General LEE. We had about eight studies, sir, that we sent up for consideration by higher authority.

Mr. CHAPMAN. Were any of those—how many of those were in Texas?

General LEE. I think four, sir.

Mr. CHAPMAN. I don't want to go into detail on that, General, but I would appreciate it if you would, for the record, furnish a list of those requests.

General LEE. Yes, sir.

[The information follows:]

SOUTHWESTERN DIVISION RECOMMENDED NEW RECONNAISSANCE STUDIES IN TEXAS

STUDY NAME
Graham, Brazos River Basin.
Midland, Colorado River Basin.
Plainview, Brazos River Basin.
San Angelo, Colorado River Basin.

PROTECTION OF THE ENVIRONMENT

Mr. CHAPMAN. Yesterday we discussed the increased emphasis given to the protection of the environment, the interface between the Corps of Engineers and other federal agencies and the promise of very constructive benefits that perhaps would come from that interface.

I would like to have your thoughts about that on the record because I think they were very insightful and very positive.

General LEE. This is Bob Lee speaking sir, not official administration policy. I think the direction that we are going in, of bringing the environmental resource agencies, Corps of Engineers and EPA together on these things in more open communications, will actually increase the country's ability to have economic development while sustaining the environment.

I think that communications and team effort will result in good decisions for the government and the people.

RECREATION FACILITIES

Mr. CHAPMAN. Last year the issue of closing recreation facilities was quite an issue before this Committee and became very controversial.

Is there adequate funding in your request to operate and maintain all the parks and recreation facilities in the Southwest Division?

General LEE. Yes, sir, we have adequate funding. We have work that we would like to do on the reservoirs but we have adequate funding.

Mr. CHAPMAN. You don't anticipate any recommendations for park closures at any time in the next year?

General LEE. The only ones that might be closed are those where there is a lack of use, a demonstration by the public that they are not needed. We might close one and expand another if public use warrants it. Another idea we are discussing in the recreation area is to maybe have some trades of parks with state and local agencies where we each have one on a lake and we each have one on another lake, maybe we could swap parks and put two together and perhaps reduce the operation and maintenance costs.

Those are the kinds of things we are working on.

FLOOD DAMAGES PREVENTED

Mr. CHAPMAN. You indicated in your testimony that flood damages prevented by Corps projects in the Fort Worth District, from October 1, 1988 through August 31, 1989, was estimated at $450 million.

Just from the terrible year we had last year in flooding, do you have any idea how that savings would compare to the cost of those projects? Would there be a good return on the investments?

General LEE. Yes, sir, there is a very good return on the investment. I have some charts back at the office that show that. Some of our projects have a return as high as 29 to 1 for the benefits they provide compared to the cost.

COOPER LAKE AND CHANNELS, TEXAS

Mr. CHAPMAN. Turning briefly to the Cooper Lake project, which is one near and dear to my heart, the budget request is $17.4 million in construction funds. Will that amount of money allow the project to proceed at full speed?

General LEE. Yes, sir.

Mr. CHAPMAN. Was there any additional capability that the Corps expressed that was not granted?

General LEE. No, sir, we have no additional needs. The capability amount is the same as the budget request.

I will furnish the capability statement for the record.

Mr. CHAPMAN. Fine.

[The information follows:]

QUALIFYING STATEMENT FOR EXPRESSED CAPABILITY

Although project and study capabilities reflect the readiness of the work for accomplishment, they are in competition for available funds and manpower Army-wide. In this context, the Fiscal Year 1991 capability amounts provided consider

each project or study by itself without reference to the rest of the program. However, it is emphasized that the total amount proposed for the Army's Civil Works Program in the President's budget for Fiscal Year 1991 is the appropriate amount consistent with the Administration's assessment of national priorities for Federal investments and the objectives of avoiding large budget deficits and the serious adverse effect that Government borrowing is having on the national economy. Therefore, while we could utilize additional funds on individual projects and studies, offsetting reductions would be required in order to maintain our overall budgetary objectives.

Mr. CHAPMAN. At this time do you anticipate or foresee any delays in the Cooper Lake project or any inability to utilize the full funding that is requested?

General LEE. No, sir. As you have seen, things are going very well. The unforeseen could happen, an unusually wet summer or something like that, but we are in good shape.

Mr. CHAPMAN. Currently, as I understand your testimony, there are negotiations going on with the Texas Department of Parks and Wildlife to come to an agreement on the utilization of the additional $5 million that the Congress provided last year for recreational facilities. I believe I heard you say you hoped those negotiations would conclude this month and you would come to an agreement with Texas Parks and Wildlife on utilization of those funds and the total park development, correct?

General LEE. Yes, sir. The Texas Parks and Wildlife and the Fort Worth District negotiated an agreement at their level for the original funding of $12 million. That has been approved by the Assistant Secretary of the Army for Civil Works. The state is now looking at the additional $5 million and have indicated they will give us their proposal for its use during the month of February.

Mr. CHAPMAN. The Fiscal Year 1990 Appropriations Act, PL 101-101, instructed the Secretary of the Army, to award the contracts for the recreational facilities at Cooper Lake during Fiscal Year 1990.

Do you anticipate any problem in carrying out that direction at this time?

General LEE. No, sir, I think everyone is headed in the right direction and working well.

COOPER LAKE AND CHANNELS, TEXAS

WEST END ACCESS

Mr. CHAPMAN. The report last year which accompanied the appropriations act directed the Secretary to furnish a West End access to Cooper Lake, which you stated last year would be a safety addition to the project, and directed that the West End access be constructed from within funds available for the project.

Since that time we have had some discussions concerning how that would be implemented. Perhaps there was some misunderstanding on my part or miscommunication with the Corps as to the extent of the project.

I understand, and for purpose of the record, I would like to ask you, are we basically over the hurdle of providing a West End access? I understand the Fort Worth Office is working at this time on some options that will furnish additional safety facilities for the lake. Am I correct?

General LEE. Yes, sir. There are some good alternatives where we can work out an agreement between the Texas Parks and Wildlife and the Fort Worth District.

Mr. CHAPMAN. The Corps, I understand, is concerned with long-term obligations for maintenance of the additional access to the lake. This could perhaps involve the expense of dredging a channel and over a period of years that could cost some money.

General LEE. Yes, sir.

Mr. CHAPMAN. One of the options, I understand, could be to construct a boat ramp that would provide access the vast majority of the time although there is a possibility that during drought conditions and low water levels the boat ramp might not be fully accessible.

That ramp would be serviceable in all but the most serious drought conditions, is that right?

General LEE. A preliminary review, using topo maps, as opposed to surveys, indicates that is possible.

Mr. CHAPMAN. If we could do that and take a step back from the full service boat ramp there would be a lot of money saved in construction.

General LEE. Absolutely. The channel construction and maintenance are the big dollar items. There may be a way to do it, as you have described, without having those expenses.

Mr. CHAPMAN. At the present time, based on the work that you know is being done at the district office in Fort Worth, the options being explored there, and apparently the good work done by Colonel Brown who is directing those efforts, do you see any significant problems in working this West End access out, as long as we can get someone to pick up the O&M?

General LEE. If it was really easy, sir, you and I would not be talking about it, but I think we are going to have this problem solved in the near future.

MC GRATH CREEK, WICHITA FALLS, TEXAS

Mr. CHAPMAN. The Corps' budget includes $300,000 for the McGrath Creek projects in the Fiscal Year 1991 request. What is the Corps' capability on the McGrath Creek project?

General LEE. Subject to the usual qualifications, it is the same as the budget request of $300,000, sir.

RED RIVER BASIN CHLORIDE, CONTROL, TEXAS AND OKLAHOMA

Mr. CHAPMAN. What is the Corps' capability in proceeding with the Red River Basin Chloride Control project during Fiscal Year 1991?

General LEE. Sir, subject to the usual qualifications, the capability is zero because the output of the Red River Basin Chloride Control project is water quality improvement. That is not a high priority in the Administration's system.

Mr. CHAPMAN. There has been some concern that if there is no funding, if the chloride control project is not funded during Fiscal Year 1991, that the entire chloride control project would have to be reauthorized in 1992.

Is that the understanding of the Corps of Engineers?

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST FED. COST
Allocations to 30 September 1989	940,000	
Conference Allowance For FY 1990	6,400,000	
Allocation for FY 1990	5,889,000 1/	
Allocation through FY 1990	6,829,000	66
Allocations Requested for FY 1991	4,471,000	100
Scheduled Balance to Complete after FY 1991	0	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $89,000 assigned as savings and slippage, $90,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and (-)$332,000 reprogrammed from the project.

PHYSICAL DATA:

Dams - Height - 99 feet; length 5,700 feet; type, earthfill.

Spillway - uncontrolled concrete chute, maximum discharge 164,200 cfs at 523.2 foot elevation.

Dike - length - 2,400 feet.

Lake Capacity - 365,400 acre-feet flood control, 62,360 acre-feet conservation.

JUSTIFICATION: The existing project was completed for flood control in October 1949. Two significant problem areas have plagued the project since it first began impounding water: embankment seepage and spillway erosion. In January 1949, extensive seepage emerged on the downstream slope. Embankment failure was prevented, and seepage was temporarily controlled, by lowering the pool and performing emergency remedial work. The history of the embankment's performance, the uncertainties associated with its condition, and inherent weaknesses of its design features combine to create a major concern. High velocity discharges cause considerable erosion of the outlet channel and could eventually undercut the spillway apron. This undercutting action could result in failure of the spillway structure. While this would probably not endanger the embankment, it would result in substantial damage.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and complete Spillway Damage Repair	$ 239,000
Continue Embankment Repair	3,484,000
Engineering and Design	210,000
Supervision and Administration	538,000
Total	$4,471,000

STATUS OF LOCAL COOPERATION: The Heavener Utility Authority, the Poteau Valley Improvement Authority and Applied Energy Services, Shady Point, Incorporated, have existing contracts for water supply storage. The contract with Applied Energy Services, Shady Point, Incorporated, is the only contract that has provisions for reimbursement of costs associated with major rehabilitation work. Cost sharing for the major rehabilitation work at Wister Lake will be subject to the same specific and joint use percent as the allocation of operation and maintenance costs for the project. Only about 3.3 percent of total useable storage is allocated to water supply and, of that, Applied Energy Services has contracted for 52 percent. The Assistant Secretary of the Army (Civil Works) (ASA (CW)) has ruled that Applied Energy Services must pay 1.734 percent of the rehabilitation costs incurred after they exercise their option to request releases from their storage in the project or at the end of their 48 month deferred payment period. Depending on beginning of releases from their storage, the repayment could range from $50,000 to $150,000. The ASA (CW) has, as an alternative, agreed to modify their contract to include the proposed rehabilitation costs in the investment cost for the storage to be repaid, thereby allowing the repayment over the remainder of the water supply contract repayment period.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $11,300,000 is a decrease of $16,600,000 from the latest estimate ($27,900,000) presented to Congress (FY 1990). This change includes the following items.

Item	Incremental Change
Post Contract Award and Other Estimating Adjustments	(-) $1,109,000
Revised Plan for Spillway	(-) 15,011,000
Total	(-) 16,120,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The District Engineer signed a Finding of No Significant Impact on 23 May 1988.

OTHER INFORMATION: The Reconnaissance Report was approved 22 December 1986 and the Design Memorandum for embankment repair was approved 6 October 1988. Funds to initiate the rehabilitation work were appropriated in FY 1989.

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Division: Southwestern

District: Tulsa

Project: Wister Lake, Oklahoma (Major Rehabilitation)

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APPROPRIATION TITLE: Operation and Maintenance, General - Major Rehabilitation

PROJECT: Beaver Lake, Arkansas, (Major Rehabilitation) (Continuing)

LOCATION: Beaver Dam is located on the White River 609.0 miles above its mouth, in Carroll County in northwest Arkansas near the city of Rogers.

AUTHORIZATION: Flood Control Act of 1954.

REMAINING BENEFITS-REMAINING COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED COST	STATUS (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$19,300,000		Entire Project	1	Feb 1992
Future Non-Federal Reimbursement		13,093,000				
Estimated Federal Cost (Ultimate)		6,207,000				
Estimated Non-Federal Cost		13,093,000				
Reimbursement		13,093,000				
Hydropower	$13,093,000					
Water Supply	0					
Total Estimated Project Cost		$19,300,000				
Allocations to 30 September 1989		221,000				
Conference Allowance for FY 1990		6,560,000				
Allocation for FY 1990		6,212,000	1/			
Allocations through FY 1990		6,433,000	33			
Allocation Requested for FY 1991		$10,698,000	88			
Scheduled Balance to Complete After FY 1991		2,169,000				
Unscheduled Balance to Complete After FY 1991		0				

1/ Reflects reduction of $92,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $256,000 reprogrammed from the project.

Division: Southwestern District: Little Rock Project: Beaver Lake, Arkansas (Major Rehabilitation)

29 JAN 1990

PHYSICAL DATA: The dam, which was started in November 1960 was completed in June 1966, is a concrete gravity and earth fill embankment structure with a 1,332-foot concrete section, a 1,242-foot earth embankment section, and three saddle dikes that extend a maximum height of 228 feet above the streambed. There is one gated flood control conduit 5 feet 8 inches by 10 feet, with a capacity at spillway crest of 4,850 cfs. The conduit is controlled by a hydraulically operated slide gate designed to operate at full opening. The emergency gated spillway consists of seven bays, each 40 feet wide, controlled by 37-foot high tainter gates. The dam contains two 56,000-kw power units, each having a discharge capacity of about 3,950 cfs. when generating at rated capacity with the reservoir at top of power pool. Storage is provided in the reservoir for water supply, flood control, and the generation of hydroelectric power. The recommended plan of improvement is a concrete seepage cutoff wall approximately 1,475 feet long with a maximum depth of 185 feet, in Dike No. 1 and the north end of the main dam.

JUSTIFICATION: The Reconnaissance Report of May 1984, found that routing of the critically centered Spillway Design Flood (SDF) through the existing spillway proved it to be marginally adequate; therefore, structural modifications to increase spillway capacity were not recommended. However, a recommendation was made that an investigation be made to develop remedial measures to control seepage beneath Dike 1. Grouting in 1968-1971 failed to stop the seepage. Based on a detailed investigation, it was determined that the limestone foundation under Dike No. 1 and 200 feet of the north end of the main dam embankment is the main problem. In December 1985 with a high pool elevation, additional seepage that contained clay, sand, and limestone particles were observed below Dike No. 1. It was then decided to operate the pool 2-5 feet below the flood control pool elevation. It has been determined that the maximum probable flood would increase seepage to the point that failure of the dike would likely occur.

A Beaver Dam failure would temporarily inundate about 21,000 acres of rural land. Property in the area that would be flooded consists of about 200 buildings, 35 miles of paved road, 11 miles of graveled road, a cemetery, and 7 public use areas. Damage to property in the flood plain is expected to be approximately $13,200,000. In addition, loss of the functional use of the lake project would result in the loss of several million dollars annually in direct tourist expenditures and about $600,000 annually in project payroll losses. Additionally, there is some loss of benefits due to operating the pool 2-5 feet below the flood control pool elevation.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue construction of concrete seepage cutoff	$10,135,000
Engineering and Design	39,000
Supervision and Administration	524,000
Total	$10,698,000

Division: Southwestern District: Little Rock Project: Beaver Lake, Arkansas (Major Rehabilitation)

29 JAN 1990

NON-FEDERAL COST: The non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation (Reimbursement)	First Cost	Annual Operation, Maintenance and Replacement Costs
Pay all costs allocated to hydropower and bear all costs of operation, maintenance, and replacement costs allocated to hydropower facilities.	$13,093,000	$0
Total Non-Federal Costs	$13,093,000	$0

STATUS OF LOCAL COOPERATION: The Southwestern Power Administration has been contacted and understands the requirement for reimbursement of costs allocated to power.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $19,300,000 is an increase of $6,500,000 from the latest estimate ($12,800,000) submitted to Congress. This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$886,000
Post-Contract Award and Other Estimating Adjustments	5,614,000
Total	$6,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A Finding of No Significant Impacts was signed in March 1988.

OTHER INFORMATION: Planning and Engineering was accomplished using regular Operation and Maintenance, General funds. The Reconnaissance Report was approved 14 October 1986 and the Design Memorandum for embankment repair was completed in September 1987. The construction contract was awarded 14 June 1989.

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Division: Southwestern District: Little Rock Project: Beaver Lake, Arkansas (Major Rehabilitation)

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General LEE. We have discussed that. The directions in the 1986 Act were to do the study and report back to the Committees if it was favorable. The report sent back covered the economics and water quality of Area Eight and it was very favorable, better than anticipated.

But the authorization in the Water Resource Development Act of 1986 is a modification of an original act, so I will have to give it to you for the record because it is a little complex.

Mr. CHAPMAN. Fine.

[The information follows:]

RED RIVER BASIN CHLORIDE CONTROL PROJECT, TEXAS AND OKLAHOMA
(AUTHORIZATION)

Analysis of Sections 1001 and 1107 of the Water Resources Development Act of 1986, Public Law 99-662 (WRDA of 86) indicates the project will not be eligible for consideration for deauthorization before October 2001 and if additional funds are not provided and obligated after that time, the project would not be deauthorized prior to March 2004, because of the following:

1. Section 1001(a) of WRDA of 86 does not apply to the project amended by Section 1107 of the WRDA of 86 for two reasons. First, Section 1001(a) applies only to projects authorized specifically by the WRDA of 86. Section 1107(b) specifically notes that the Red River Basin Chloride Control project was authorized in Section 203 of the Flood Control Act of 1966 (FCA of 66). Section 1107 amends the FCA of 66 but does not negate the initial authorization. Second, Section 1001(b) of the WRDA of 86 is a general provision regarding time frames for deauthorization of unfunded projects. Section 1001(b) establishes a periodic reporting process to Congress. This permits Congress to allow automatic deauthorization or to avoid it by providing additional funding. The Red River Basin Chloride Control, Texas and Oklahoma project has never been included in either the Section 1001(b)(1) or the Section 1001(b)(2) list, and it will not be included in the latter for at least ten years.

2. Funds were reprogrammed to the Arkansas-Red River Basin Chloride Control Project, Area VIII, Texas on 2 January 1990 to pay a construction claim. Area VIII is an integral part of the Red River Basin Chloride Control Project, Texas and Oklahoma which was authorized by Section 203 of the FCA of 66, as amended.

Mr. CHAPMAN. Last year my colleague, Congressman Watkins from Oklahoma, was asking some questions about the determination of the performance of the chloride control project from the study that would report that performance.

We understand that the performance is actually exceeding the design projections. Do you have any knowledge about that?

General LEE. Yes, sir, the report was very favorable. The report shows that the first part of the project has done better than we originally said it would.

Mr. CHAPMAN. What are the environmental benefits, if you can outline them, for people in Oklahoma, Texas, Arkansas and Louisiana, if we proceed with the projects and construct that Crowell-Brine Dam? What does that do for us environmentally?

General LEE. The entire project has many benefits downstream, 83 percent to Texas, 10 percent to Oklahoma, 6 percent to Louisiana, and 1 percent to Arkansas. An estimated 290,000 acres would be irrigated with the project in operation but only 100,000 acres can be irrigated without the project in operation.

The water quality in Lake Texoma will meet the water quality standards, 94 percent of the time with the project, but without it only meets the standards 3 percent of the time.

Mr. CHAPMAN. So 94 percent of the time Lake Texoma would meet EPA standards.

General LEE. It would be extreme drought conditions where it would not meet those standards.

WALLISVILLE LAKE, TEXAS

Mr. CHAPMAN. Let me ask you a few questions on behalf of my colleague, Mr. Brooks, about the Wallisville project. This year's Energy and Water Development Appropriations Act provided funding of $4 million for the project and directed the Corps of Engineers to enter construction contracts, which I understand are anticipated later this year.

According to your testimony, in accordance with the law, a construction contract that would have an estimated cost of $8.4 million is anticipated to be awarded in June. Yet there is no request in the budget for follow-on funding of that contract.

Obviously, $4 million is insufficient. My question to you would be, can you tell me what is your capability, if this Committee wanted to continue funding of that contract and move forward as was indicated in last year's public law? What would be the capability for this year and the follow-on capability for the Wallisville project?

General LEE. In Fiscal Year 1990 the money provided is more than adequate to award the contract. The contract is not scheduled for award until June because an eagle and eagle's nest were found in the area, but we expect to have it ready for a June award.

Subject to the usual qualifications, we estimate an amount of $9,200,000 for the unbudgeted capability in 1991, which would be fully adequate for optimum construction.

Mr. CHAPMAN. $9.2 million?

General LEE. Yes, sir.

Mr. CHAPMAN. Thank you.

Mr. Chairman, I am almost finished.

Mr. BEVILL. Take your time.

BIG PINE LAKE, TEXAS

Mr. CHAPMAN. General, one other question about one other project: there is authorized in my Congressional district a project called Big Pine Reservoir. It was authorized by the Flood Control Act of 1962 and is actually under the jurisdiction of the Tulsa Office of the Corps.

It is my understanding that the project has been in deferred status for the past five years. Currently, there seems to be some local interest in bringing this project back to an active status.

Colonel Smith of the Tulsa District has indicated that a reevaluation of the project would need to take place as well as finding a local sponsor. I believe there are some potential sponsors who would like to meet with the Corps of Engineers to discuss the lake.

I hope you and the Tulsa office will assist in that matter. I hope we can see if development of that project is feasible and proper.

Do you have any information or insight about Big Pine that you can provide for this Committee?

General LEE. I think you stated it very clearly. I would add two points. One, the project originally died because it did not have a local sponsor. We feel at the district and the division that we need

to reevaluate it because the costs and benefits probably have changed.

We would like to pursue that. We will work with you and the local people.

Mr. CHAPMAN. Mr. Chairman, I have a few other questions that I would request permission to submit to be answered for the record.

General Lee, again, let me thank you for your excellent testimony. I appreciate your cooperation and look forward to continuing to work with you and the division.

Mr. BEVILL. Thank you. Without any objection, your questions and questions from Mr. Myers, and I and from Mr. Watkins, who could not be here, will be submitted to be answered on the record.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN CHAPMAN

NEW STARTS

Mr. CHAPMAN. The Corps of Engineers FY 91 budget request contains no new reconnaissance studies and no new construction starts. Did the Southwestern Division send up to the Chief of Engineers or OMB any requests for reconnaissance studies or new construction starts? If so, which type of new start did you request and how many?

General LEE. Sir, the Southwestern Division requested funds for eight new reconnaissance studies and two new construction starts as listed in the following table:

RECOMMENDED NEW START RECONNAISSANCE STUDIES
(Flood Damage Prevention)

STUDY
Espanola Valley, New Mexico, Rio Grande and Tributaries
Graham, Brazos River Basin, Texas
Little Red River Basin, Arkansas
Midland, Colorado River Basin, Texas
Plainview, Brazos River Basin, Texas
Rio Rancho, New Mexico, Rio Grande and Tributaries
San Angelo, Colorado River Basin, Texas
White Water River Watershed, Kansas

RECOMMENDED NEW CONSTRUCTION STARTS

PROJECT	TYPE
Middle Rio Grande Flood Protection Bernalillo to Belen, New Mexico	Local Protection (Flood Control)
Red River Basin Chloride Control, Texas and Oklahoma	Water Quality

ENVIRONMENTAL ACTIVITIES

Mr. CHAPMAN: Clearly, increased attention has been given to the protection of our environment in the Corps of Engineers FY 91 Budget. Was the Southwestern Division of the Corps solicited to place new emphasis on projects which maintain and restore the environment as opposed to strictly water resources development projects?

General LEE: Yes, sir. The Chief of Engineers and his staff have emphasized to us throughout the year a renewed emphasis on environmental protection in normal Corps activities, and the use of the Corps' talent and capability to undertake projects in which the specific purpose is restoring fully functioning environmental processes.

Mr. CHAPMAN: How do you foresee the mission of the Corps in maintaining and restoring the environment?

General LEE: Sir, the Corps is becoming more sensitive to the requirements of the environment in the performance of its traditional activities. We are following the concepts of no net loss of wetlands and environmentally sustainable development. In the future, the Corps will use its talent, capability and environmental sensitivity to undertake those projects which will restore fully functioning environmental processes, such as, cleanup of hazardous waste dumps; restoration of damaged rivers or estuarine systems; rehabilitation and stabilization of eroded shorelines; and creation of marshes, other wetland areas, and bird rookeries.

Mr. CHAPMAN: How do you feel this will affect the other missions of the Corps?

General LEE: Sir, the other missions will be more environmentally sound as a result of the increased environmental sensitivity and capability.

ENVIRONMENTAL PROJECTS
(Section 1135 Projects)

Mr. CHAPMAN: Did the Southwestern Division request funds for FY 91 for any specific "environmental project" to the Chief of Engineers or OMB?

General LEE: Sir, the Southwestern Division did not request Fiscal Year 1991 funding for any projects that are specifically environmentally oriented. However, two projects were proposed, and they are receiving consideration, as possible modifications at completed projects that might be accomplished under the provisions of Section 1135 of the Water Resources Development Act of 1986, Public Law 99-662. These proposed project modifications are to restore sea grasses in the Laguna Madre area of the Gulf Intracoastal Waterway, Texas project; and to develop wetlands for fisheries and migratory waterfowl at Morgan Bendway in Arkansas on the McClellan-Kerr Arkansas River Navigation System, Arkansas and Oklahoma project.

ENVIRONMENTAL PROJECTS
(Section 1135 Projects) (Continued)

Many of our studies and projects that are included in the Fiscal Year 1991 Budget Request, however, have strong environmental aspects associated with them. For example, studies that have major environmental components, for which funds are being requested, include the Matagorda County Shore, Texas study which has, as a major part of its goal, the development of plans to prevent further erosion along that section of the Gulf Beach; and the Gulf Intracoastal Waterway, Aransas National Wildlife Refuge, Texas study where a major part of the study effort will be directed toward development of methods to protect the critical wetland habitat of the whooping crane in the Aransas Pass area of the Gulf Intracoastal Waterway, and other endangered species habitats along the waterway. Construction projects which have major environmental aspects associated with them, for which funds are being requested, include the Mouth of Colorado River, Texas project, where the diversion channel being constructed will divert fresh water from the river into the Matagorda Bay and will greatly increase the wetlands and the productivity of the bay estuarine system; and the Cooper Lake and Channels, Texas project where more than 25,000 acres of mitigation land are being purchased and measures are being developed to improve the wildlife habitat.

FLOODING IN TEXAS

Mr. CHAPMAN. In contrast to the drought of 1988, during May and June of this past year, Texas experienced extensive storms which resulted in record rainfalls and heavy flooding. The North and East parts of Texas were particularly hard hit which resulted in extensive damage and even loss of lives. I understand that Corps personnel was instrumental in investigating this situation and I would like to commend the Fort Worth District for the job they did in responding to this disaster.

General Lee, in your testimony, you indicate total flood damages prevented by Corps projects in the Fort Worth District during the period of October 1, 1988 through August 31, 1989 was estimated to be $450 million. How does this figure compare to the cost to construct these Corps projects?

General LEE. Sir, these flood damages were prevented by 19 reservoirs and two floodways, which were constructed for approximately $947,000,000.

Mr. CHAPMAN. At how many Corps projects did the water levels exceed the capacity and flow over emergency spillways or embankments causing flooding?

General LEE. Sir, the water level at Benbrook, Grapevine, and Lewisville Lakes exceeded the crest of their emergency spillways. The flows over these spillways caused only minor flooding immediately downstream of the dams. This flow, however, when added to the flow further downstream did add to the flooding conditions in the Fort Worth-Dallas area. In addition, the level at Lavon Lake exceeded the elevation of the top of the tainter gates and the gates were raised to prevent their being overtopped. The floodwaters from Lavon Lake, however, flowed into Lake Ray Hubbard. Since Lake Ray Hubbard has no flood control storage capacity, the floodwaters were released downstream and caused extensive damage to East Fork and Trinity River levees, some of which are being repaired at this time.

FLOODING IN TEXAS

Mr. CHAPMAN. What is the cost of damages due to flooding at Corps facilities?

General LEE. Sir, the total damage at Fort Worth District projects is estimated at $5 million; $1.8 million primarily to park roads; $1.6 million primarily to recreational facilities; and $1.6 million in erosion damage. A letter detailing these damages to Corps of Engineers' projects will be provided to higher authority in February 1990.

Mr. CHAPMAN. Are there ongoing studies for future projects or projects under construction but not yet completed that would have prevented some of the flooding?

General LEE. Yes, sir. There are two ongoing studies which may result in projects that would have prevented some of this flooding.

Mr. CHAPMAN. Would you please provide a list of these?

General LEE. Sir, the studies listed below may result in projects that would have prevented a portion of the damages suffered.

ONGOING STUDIES FOR FUTURE PROJECTS
TO PREVENT FLOODING

STUDY	CATEGORY	FEASIBILITY STUDY COMPLETION DATE
Upper Trinity River Basin	Survey	September 1993
Five Mile Creek	Planning and Engineering	February 1992.

COOPER LAKE AND CHANNELS, TEXAS

Mr. CHAPMAN. Would you please explain why the completion date for the Cooper Lake project has slipped from September 1993 until June 1994?

General LEE. Sir, the addition of $5,000,000 in recreational facilities to the schedule of unconstructed features was authorized by the Energy and Water Development Appropriations Act, 1990, Public Law 101-101. This has resulted in a need to extend the overall project completion date by nine months, to June 1994.

Mr. CHAPMAN. Will this delay in the completion of the project affect the scheduled impoundment date of September 1991?

General LEE. No, sir. Deliberate impoundment is scheduled for September 1991, which is the same as the scheduled impoundment date at this time last year.

BOSQUE RIVER WATERSHED, TEXAS

Mr. CHAPMAN. Does the Southwestern Division have a capability to utilize funds in Fiscal Year 1991 to conduct a Feasibility Study to identify any Federal interest in terms of flood protection and/or dam safety which would result from the Brazos River Authority constructing and operating its proposed Lake Bosque upstream of the Corps' existing Waco Lake, Texas?

General LEE. Sir, subject to the usual qualifications, the Southwestern Division has a $150,000 capability to initiate the feasibility phase of the Bosque River Watershed, Texas study in Fiscal Year 1991. The preliminary estimated cost of the feasibility phase is $500,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests.

Mr. CHAPMAN. In this connection, are you aware that the Brazos River Authority, an agency of the State of Texas, has agreed to serve as the local sponsor for such a study and has agreed to pay the required 50% non-Federal share of the study costs and has assured the Fort Worth District Engineer in writing that if a joint Federal and Authority interest is identified, and if a project is subsequently authorized, the Authority intends to provide necessary items of local cooperation in accordance with applicable law and policy?

General LEE. Sir, we are aware of the Brazos River Authority's interest in being the local sponsor for a cost-shared feasibility study of Bosque Lake. We also understand the Brazos River Authority intends to provide the necessary items of local cooperation if a feasible project is identified.

BARDWELL LAKE, TEXAS
(Section 216)

Mr. CHAPMAN. Last year, the Energy and Water Development Appropriations Bill for FY 1990 provided $60,000 to initiate the feasibility phase of a project review study at Lake Bardwell. I notice there are no additional funds requested under the general investigations category of the FY91 budget to continue this study. Would you please outline the status of this study?

General LEE. Sir, the Bardwell Lake Draft Reconnaissance Report, completed in May 1989, concluded it was feasible to raise the conservation pool five feet by reallocating flood control storage to water supply storage. The draft report noted that if the Trinity River Authority requested a modification of the existing contract to include use of the existing water supply storage space for terminal storage of Richland Chambers Creek Reservoir water, there would be no immediate need for the five foot reallocation. Currently, discussion is underway with the Trinity River Authority concerning their desire to add a terminal storage clause to the existing water supply contract.

BARDWELL LAKE, TEXAS
(Section 216)

Mr. CHAPMAN. What is the Corps' capability on the Lake Bardwell project for FY 91?

General LEE. Sir, subject to the usual qualifications, the capability for the Bardwell Lake, Texas study is zero, as the reconnaissance phase studies are fully funded and there is no longer a need for feasibility phase studies.

Mr. CHAPMAN. Why have no funds for FY91 been requested to continue the Lake Bardwell feasibility study?

General LEE. Sir, it was originally scheduled for the Bardwell Lake Reconnaissance Study to be completed in Fiscal Year 1989, and for the feasibility study to be initiated in Fiscal Year 1990 and completed in Fiscal Year 1991. Based on recommendations in the draft Bardwell Lake Reconnaissance Report, and subsequent discussion with the study sponsors, the cities of Ennis and Waxahachie, it has been determined there is no immediate need for a feasibility study. Consequently, funds to continue feasibility studies were not requested for Fiscal Year 1991.

GULF INTRACOASTAL WATERWAY, TEXAS
SARGENT BEACH STUDY

Mr. CHAPMAN. Severe erosion problems at Sargent Beach in Matagorda County may potentially have a serious affect on the Gulf Intracoastal Waterway (GIWW). I understand the Corps recently completed their reconnaissance study on this problem. Would you please outline the results of that study?

General LEE. Sir, the reconnaissance studies concentrated on protecting the existing alignment with various wall-type structures and a rock revetment. All alternatives considered were shown to be economically justified. During feasibility studies, a channel realignment plan will also be evaluated.

Mr. CHAPMAN. What is the Corps' capability on the Sargent Beach project for FY 91?

General LEE. Sir, subject to the usual qualifications, the capability for the Gulf Intracoastal Waterway, Sargent Beach Study in Fiscal Year 1991 is $500,000, which is the same as the budget request. These funds will be used to continue feasibility studies.

GULF INTRACOASTAL WATERWAY, TEXAS
SARGENT BEACH STUDY

Mr. CHAPMAN. In your justification material you indicate if erosion rates continue unchecked, the Gulf will breach the GIWW soon after the year 2000 which would close the waterway to barge traffic. I am afraid this would have a very serious economic impact on this area and the nation. Currently, the feasibility study is scheduled to be completed in September 1992. Does the Corps have any preliminary time line for how long it would take to move through the design and engineering phase into construction and then to completion of correcting this serious problem?

General LEE. Sir, assuming a two and one-half year requirement for feasibility studies; six months for review time; two years for engineering and design studies; six months for preparing the plans and specifications and awarding the contract; and three years for construction, the project could optimistically be completed by the end of 1998. This also assumes that the project would be authorized for construction during the two years of engineering and design activities and that the project would receive funds for initiation of construction during the preparation of plans and specifications time frame.

DALLAS FLOODWAY EXTENSION, TRINITY RIVER, TEXAS

Mr. CHAPMAN. In May and June of 1989, the City of Dallas suffered severe flood damage and loss of life, particularly in the southern sections. There is significant local interest in cooperating with the Corps on the Dallas Floodway Extension. What is the Corps' capability for FY91 for the Dallas Floodway Extension project?

General LEE. Sir, subject to the usual qualifications, the Southwestern Division has a $350,000 capability in Fiscal Year 1991 to resume Preconstruction Engineering and Design activities on the Dallas Floodway Extension, Trinity River, Texas project.

RED RIVER BASIN CHLORIDE CONTROL
TEXAS AND OKLAHOMA

Mr. CHAPMAN. It is my understanding that if this chloride control project is not funded during FY 91, then the whole project will have to be reauthorized starting in FY 92. Is that true?

General LEE. Sir, the project will not be eligible for desauthorization in Fiscal Year 1992.

QUESTIONS SUBMITTED BY CONGRESSMAN MYERS

BEAVER LAKE, ARKANSAS
(WATER QUALITY ENHANCEMENT)

Mr. MYERS. I am pleased to note that the Corps has requested funding for the Beaver Lake, Arkansas water quality project in our colleague Mr. Hammerschmidt's district. Has the Division been authorized to obligate the $1.1 million provided in the FY 1990 Energy and Water Development Act for this project?

General LEE. Sir, $15,000 was sequestered in accordance with the Gramm-Rudman-Hollings Act and $100,000 has been allocated to negotiate a Local Cost Sharing Agreement with the Arkansas Soil and Water Commission. The remaining $985,000 has been withheld pending execution of the Local Cost Sharing Agreement scheduled in July 1990.

Mr. MYERS. How will the Corps use the Beaver Lake, Arkansas funds requested for FY 1991?

General LEE. Sir, tentatively $230,000 is scheduled to be used to continue Best Management Practices and $70,000 to continue water quality monitoring. Best Management Practices is a method for controlling non-point source pollution. The practices will be determined on a case-by-case basis in response to the specific non-point source pollution problem. Best Management Practices can include improved solid waste handling and treatment methods, erosion control features and diversion structures to prevent contamination of rainfall runoff. The water quality monitoring system is to be used to check the quality of the lake water and the effectiveness of Best Management Practices.

Mr. MYERS. What is the Corps' FY 1991 capability on the Beaver Lake, Arkansas water quality project?

General LEE. Sir, subject to the usual qualifications, the Fiscal Year 1991 capability for the Beaver Lake, Arkansas, Water Quality Enhancement project is the same as the budget amount of $300,000.

QUESTIONS SUBMITTED BY CONGRESSMAN BEVILL

BRAZOS RIVER DIVERSION CHANNEL, TEXAS

Mr. BEVILL. Why have no funds been requested to continue the Brazos River Diversion Channel study?

General LEE. Sir, reconnaissance studies, which were completed in May 1989, demonstrated that it would not be economically feasible to construct and maintain the Brazos River Diversion Channel in the interests of commercial navigation. Therefore, with the concurrence of the local sponsor, the study has been terminated and no additional funds are required.

ARKANSAS RIVER BASIN STUDY ARKANSAS AND OKLAHOMA

Mr. BEVILL. What is the status of the Arkansas River Basin study?

General LEE. Sir, the Federally funded reconnaissance report was completed in August 1986. In conjunction with the two local sponsors, the states of Arkansas and Oklahoma, the feasibility report is proceeding to a completion in September 1990. This report will document the results of the studies of Arkansas River water usability, new projects, levee reconstruction, and review of system operating plans. The University of Arkansas at Fayetteville completed the usability study of the Arkansas River water in January 1990. These studies determined that the water quality of the Arkansas River is much better than was experienced prior to the completion of the McClellan-Kerr Navigation System. On 26 January 1990, the Office of Governor of Arkansas issued a news release concerning the results of the study, indicating that the Arkansas River is a suitable source of raw water.

With regard to new project studies, none of the potential projects investigated in Arkansas or Oklahoma were economically justified. The study participants are reviewing the results of the operating plan studies which identified only minor differences between the operating plans investigated. With regard to the levee reconstruction studies, the mid-study determination of no Federal interest in this cost-shared study item has displeased the study sponsors. Both states are seeking a change in policy or special legislation to authorize Federal participation in the necessary levee rehabilitation work.

CANEY RIVER, KANSAS AND OKLAHOMA

Mr. BEVILL. In FY 1990, $150,000 was appropriated for the Caney River study. Why is only $30,000 being allocated?

General LEE. Sir, the Fiscal Year 1990 appropriated amount of $150,000 was for the Caney River study for continuation of a cost-shared feasibility study and reflected an anticipated initiation of the study in Fiscal Year 1989. The feasibility phase could not be started as scheduled, however, because a Feasibility Cost Sharing Agreement had not been signed. Potential sponsors are

CANEY RIVER, KANSAS AND OKLAHOMA (Continued)

conducting public information sessions to determine the interest in signing an agreement. Negotiations with the local sponsors are continuing and it is expected the cost sharing agreement will be consummated by May of this year. Based on initiation of the feasibility studies in the May-June timeframe of this year, the scheduled allocation of $30,000 in Federal funds, together with $30,000 in local sponsor funds, are adequate to accomplish all scheduled activities.

Mr. BEVILL. Why has the completion date for the feasibility study slipped from September 1991 to May 1993?

General LEE. Sir, completion of the Caney River Feasibility study has been revised to reflect the delay experienced in initiation of the feasibility study because of a lack of a cost sharing agreement between the Federal government and a local sponsor. Potential local sponsors include four counties, two cities, and the Oklahoma Water Resources Board. The current scheduled completion date of May 1993 reflects the sponsors' schedule for review of the reconnaissance report, public involvement meetings requested by potential sponsors, and subsequent negotiation of the Feasibility Cost Sharing Agreement.

ROSWELL, PECOS RIVER, NEW MEXICO

Mr. BEVILL. What is the status of the Roswell, Pecos River, study which was scheduled to be completed by September 1990?

General LEE. Sir, studies have determined that the Rio Hondo is the most significant flood threat to the city. We are currently evaluating alternatives for flood protection along the Rio Hondo. Feasibility studies are scheduled to be completed in September 1990 and it is expected that the Division Engineer's public notice of study completion will be made in October 1990.

CRUTCHO CREEK, OKLAHOMA

Mr. BEVILL. Why are only $30,000 being allocated for the Crutcho Creek, Oklahoma, study in FY 1990?

General LEE. Sir, the scheduled allocation of $30,000 to the Crutcho Creek study, in lieu of the $110,000 appropriated for Fiscal Year 1990, reflects the delay in consummation of a Feasibility Cost Sharing Agreement between the Federal government and local sponsors. Negotiations with the local sponsors are expected to result in a cost sharing agreement being signed by both parties this summer. Based on initiation of the feasibility studies this summer, the scheduled allocation of $30,000, together with a like amount from the local sponsors, is sufficient for Fiscal Year 1990.

CRUTCHO CREEK, OKLAHOMA

Mr. BEVILL. Does having Tinker Air Force Base as one of the project sponsors present any problems in executing local cooperation agreements?

General LEE. Sir, initially there were concerns about how Tinker Air Force Base would be considered in any cost sharing agreement. However, the cost sharing requirements for the Crutcho Creek feasibility study will be in accordance with Section 105 of the Water Resources Development Act of 1986, Public Law 99-662. This section requires, without exception, that a feasibility study for a water resources project not be initiated until non-Federal interests agree to pay 50 percent of the costs. Any funds for the feasibility study which are contributed by Tinker Air Force Base would be considered a part of the Federal share of the cost, not a part of the non-Federal share. Non-Federal sponsors have been advised of this requirement.

KEYSTONE DAM TO TULSA, ARKANSAS RIVER, OKLAHOMA

Mr. BEVILL. Why have no funds been requested to continue the Keystone Dam to Tulsa, Arkansas River, Oklahoma, study?

General LEE. Sir, the reconnaissance study did not identify any new projects which are economically justified. Rehabilitation of the existing Tulsa-West Tulsa levees is justified; however, under current Corps policy, rehabilitation of these levees is a non-Federal responsibility. Therefore, no projects were identified for Federal involvement and the reconnaissance studies recommended study suspension.

MIAMI, OKLAHOMA AND VICINITY, OKLAHOMA

Mr. BEVILL. Compared to the information provided last year, the cost of the Miami, Oklahoma, and Vicinity study has gone down but the completion date has slipped 9 months. Please explain.

General LEE. Sir, last year's information was based on in-progress reconnaissance findings of a wide array of flood control alternatives. Since then, the reconnaissance study has identified a limited number of solutions for Miami flood problems. The result is a significant reduction in the scope of the study and the estimated feasibility study cost. Negotiations, currently underway, are expected to lead to a signed cost sharing agreement between the Federal government and the local sponsor in the April-May timeframe of this year. This agreement will define the scope of study and will contain an estimated cost for the study. The revised estimated total cost of $600,000 and the completion date of April 1993 for the Miami, Oklahoma and Vicinity feasibility study reflect the Corps' assessment of negotiations to date.

NORTH CANADIAN RIVER ABOVE LAKE OVERHOLSER, OKLAHOMA

Mr. BEVILL. Why have no funds been requested to continue the North Canadian River above Lake Overholser, Oklahoma study?

General LEE. Sir, the North Canadian River above Lake Overholser, Oklahoma, reconnaissance study was completed in March 1989. The study found that significant flood problems exist along the North Canadian River, and several potential solutions are technically feasible; however, Federal participation would not be warranted because project benefits would not exceed project costs. Therefore, no further studies are planned at this time. A public notice was issued June 2, 1989.

CAMERON COUNTY, TEXAS

Mr. BEVILL. Why have no funds been requested to continue the Cameron County, Texas study?

General LEE. Sir, the scope of the Cameron County study was reduced because potential projects in the agricultural and urban watersheds in the county could not be economically justified. Funds currently available to the study are sufficient to complete the Cameron County Feasibility studies and, therefore, no funds were requested for Fiscal Year 1991.

CENTRAL COLORADO RIVER BASIN, TEXAS

Mr. BEVILL. Why have no funds been requested to continue the Central Colorado River Basin, Texas, study?

General LEE. Sir, the draft reconnaissance report, completed in September 1989, did not identify, nor recommend, a potentially feasible project. Therefore, additional funds to continue the study are not required in Fiscal Year 1990.

FORT BEND AND BRAZORIA COUNTIES, TEXAS

Mr. BEVILL. Why have no funds been requested to continue the Fort Bend and Brazoria Counties, Texas, study?

General LEE. Sir, reconnaissance studies of flood problems in Fort Bend and Brazoria Counties were terminated in May 1989 because of a lack of local sponsor support for the projects identified as potentially economically feasible. Consequently, there is no need for additional Federal funds.

UPPER TRINITY RIVER BASIN, TEXAS

Mr. BEVILL. Why has the scheduled completion date for the Upper Trinity River Basin, Texas, study slipped almost 1 year?

General LEE. Sir, the feasibility study is scheduled for completion in September 1993, which is the same as reported last year. The study period concludes with the Division Engineer's public notice of study completion. The feasibility phase completion date of August 1994 is the anticipated date the report will be submitted to the Office of Management and Budget.

BARDWELL LAKE, TEXAS
(Section 216)

Mr. BEVILL. Why have no funds been requested to continue the Bardwell Lake, Texas study?

General LEE. Sir, based on current information, the best course of action to provide additional water supply yield at Bardwell Lake is to modify the existing water supply contract for provision of terminal storage use in Bardwell Lake. Additional water would be received from the downstream non-Federal reservoir, Richland Chambers Creek Reservoir. Since this contract modification would delay indefinitely the need for a feasibility study of a pool raise and reallocation, there is no need for additional funds for this study.

DALLAS FLOODWAY, TEXAS

Mr. BEVILL. Why have no funds been requested to continue the Dallas Floodway, Texas, study?

General LEE. Sir, the Dallas Floodway Draft Reconnaissance Report, completed in February 1989, recommended widening the existing Trinity River Channel inside the levees in order to maintain authorized levels of protection. Initiation of feasibility studies are being held in abeyance until the effects of the Upper Trinity River Basin reconnaissance study on the Dallas Floodway project are known. The Upper Trinity reconnaissance phase study is scheduled for completion in March 1990.

HOUSTON-GALVESTON NAVIGATION CHANNELS, TEXAS

Mr. BEVILL. Last year's justification material indicated that the total cost of the Houston-Galveston Navigation Channels was $337,700,000 with average annual benefits of $81,363,000. This year the total project cost is $633,300,000 with average annual benefits of $56,436,000. Please explain the difference.

General LEE. Sir, last year's justification material was based on the District's Feasibility Report. The Board of Engineers for Rivers and Harbors reduced the average annual benefits of $81,363,000 to $56,436,000 primarily because the board assumed that the California crude oil movements to the Houston area are likely to move via pipeline in the near future rather than by ship. The change in cost from $337,700,000 to $633,300,000 is primarily due to inclusion of the construction cost of $105,000,000 for the Galveston Bay Entrance Channel, originally part of the authorized Texas City Channel 50-foot project, which is now in a deferred status at the request of the local sponsor; inclusion of about $86,000,000 for a locally preferred dredged material disposal plan as recommended in the final Chief's report; and the addition of an amount for future inflation through the construction period of $111,000,000.

BRAZOS ISLAND HARBOR, TEXAS
(42-foot project)

Mr. BEVILL. Why has the cost of preconstruction engineering and design for the Brazos Island Harbor project increased from $1,300,000 indicated last year to $2,050,000?

General LEE. Sir, the additional funds are needed to obtain more subsurface geotechnical information; for environmental coordination of modifications to the disposal plan; for associated engineering studies in connection with preparing the General Design Memorandum; as well as preparation of the first set of construction plans and specifications. Additional funds are also needed for ship simulation studies, a new requirement for the project, and for cultural resources studies, originally planned for the construction phase of the project.

UPPER LITTLE ARKANSAS RIVER WATE7RSHED, KANSAS

Mr. BEVILL. Why has the cost estimate for preconstruction engineering and design for the Upper Little Arkansas Watershed, Kansas, project more than doubled since last year?

General LEE. Sir, the increase in the estimated cost of Preconstruction Engineering and Design for the Upper Little Arkansas River Watershed, Kansas project, reflects a shifting of scheduled engineering and design costs from the Construction phase to the Preconstruction Engineering and Design phase. The original project schedule was developed using two stages of geotechnical exploration; one during Preconstruction Engineering and Design and a second after construction of the project was initiated. Recent analysis shows that combining all geotechnical effort into the Preconstruction Engineering and Design phase is more efficient and will provide greater detail for more accurate cost estimates.

FIVE MILE CREEK, DALLAS, TEXAS

Mr. BEVILL. Last year's budget submission showed a completion date for PED on the Five Mile Creek, Dallas, Texas, project of September 1993. What has caused the completion date to slip to February 1995?

General LEE. Sir, prolonged negotiations on the Feasibility Cost Sharing Agreement with the City of Dallas have delayed initiation of the feasibility studies and subsequently will delay completion of the Planning, Engineering and Design phase. Prior to this summer, there was indecision by the city to participate in the study. Flooding in May and June 1989 caused over $7 million in damages in the Five Mile Creek area. The City of Dallas, in a letter dated June 12, 1989, indicated their willingness to cost share in the feasibility study. In November 1989, the Dallas voters passed an $8.5 million bond issue for flood control improvements along the middle portion of Five Mile Creek. Negotiations on the cost sharing agreement are nearing completion and consummation of the agreement by both parties is anticipated in the March-April timeframe of this year.

LOWER RIO GRANDE BASIN, TEXAS

Mr. BEVILL. Why has the Lower Rio Grande Basin, Texas, PED project been divided in two separate features for FY 1991?

General LEE. Sir, each of the three major elements of the total project are functionally and economically separable. In order that construction of the total project may be phased to accommodate the local sponsor's financial capabilities, the project has been divided into three elements: Arroyo, Colorado; South Main Channel; and Raymondville Drain.

CYPRESS CREEK, TEXAS

Mr. BEVILL. Are you proceeding with preconstruction engineering and design of the Cypress Creek, Texas, project in FY 1990 as directed by the Congress?

General LEE. Sir, Preconstruction Engineering and Design, PED, activities on the Cypress Creek, Texas project have not been initiated, pending completion of a review of the project by the Office of Management and Budget, OMB. Additional information has been furnished to OMB and PED will be initiated following receipt of a favorable decision.

RED RIVER WATERWAY, LOUISIANA, ARKANSAS, OKLAHOMA, AND TEXAS
(INDEX, ARKANSAS TO DENISON DAM, TEXAS)
(Bank Stabilization)

Mr. BEVILL. Are you proceeding with preconstruction engineering and design of the Red River Waterway, Index, Arkansas, to Denison Dam, Texas, project in FY 1990 as directed by the Congress?

General LEE. No, sir. The Conference Report, H.R. 101-235, on the Energy and Water Development Appropriations Act, 1990, Public Law 101-101, contained a line item amount of $200,000 to resume Preconstruction Engineering and Design on the Red River Waterway, Index, Arkansas to Denison Dam, Texas, Bank Stabilization project. Neither the House Report, H.R. 101-96, the Senate Report, S101-83, the Conference Report, or the Public Law contained specific language as to this project, however. Accordingly, the project's lack of high priority benefits, it would produce primarily bank stabilization benefits, and a cursory review of the economics of the project, which indicated a benefit-cost ratio of less than unity at an 8-7/8 percent interest rate, resulted in the decision not to resume Preconstruction Engineering and Design on this project.

BIG AND LITTLE SALLISAW CREEKS, OKLAHOMA

Mr. BEVILL. What is the status of preconstruction engineering and design for the Big and Little Sallisaw Creeks, Oklahoma, project?

General LEE. Sir, in accordance with the Energy and Water Development Appropriation Act, 1990, Public Law 101-101, and House Report, H.R. 101-96, studies leading to preparation of a report confirming the project benefits have been initiated. The report is scheduled for completion, and subsequent submission to higher authority, in June 1990. This will complete all remaining

BIG AND LITTLE SALLISAW CREEKS, OKLAHOMA (Continued)

items of work planned for the Preconstruction Engineering and Design phase on the authorized Big and Little Sallisaw Creeks, Oklahoma project. Because the construction of the project will be primarily dredging, plans and specifications are scheduled to be accomplished during the first year of the construction phase.

MOUTH OF COLORADO RIVER, TEXAS

Mr. BEVILL. Why has the completion date for the Mouth of the Colorado River, Texas, project slipped to December of 1992?

General LEE. Sir, the slippage of project completion from June 1991 to December 1992 reflects a request by the U.S. Fish and Wildlife Service to assist the Corps of Engineers in conducting a survey of bay water salinities under after-diversion conditions. This survey will aid in placing the last feature of construction for the project, establishment of an oyster clutch, in a location which will insure maximum productivity of the new reef. This action was agreed to with the understanding that the project cost would not be affected, which prompted the Fish and Wildlife Service to provide their services without cost to the project. As a result, the contract award for construction of the oyster clutch facility was slipped from June 1990 to June 1992. This will allow a period of approximately nine months after completion of diversion to conduct the water sampling surveys necessary to establish a salinity gradient in the bay under full diversion conditions.

McCLELLAN-KERR ARKANSAS RIVER
NAVIGATION SYSTEM, LOCKS AND DAMS
ARKANSAS AND OKLAHOMA

Mr. BEVILL. Last year for the McClellan-Kerr project you reported a scheduled balance to complete after FY 1990 of $8,866,000. This year you report a scheduled balance to complete after FY 1991 of $14,709,000. Please explain the increase.

General LEE. Sir, the increase in the balance to complete after Fiscal Year 1991 was primarily the result of the addition of planning and design for Montgomery Point Lock and Dam, $6,300,000; the addition of further real estate requirements, $3,780,000; and the increase due to the award of the Meander Cutoff Levee contract, $2,700,000.

FOUNTAIN CREEK, PUEBLO, COLORADO

Mr. BEVILL. Will the Fountain Creek, Pueblo, Colorado, project be completed this fiscal year as scheduled?

General LEE. Sir, construction of the project proceeded at an accelerated pace last fiscal year, resulting in construction of the project being substantially complete in July 1989. There is, however, a possibility that a small contract to control surface erosion will be required. Even if this contract should be required, we anticipate completion of all project construction in Fiscal Year 1990.

GREAT BEND, KANSAS

Mr. BEVILL. Please describe the design changes that caused a $6,300,000 decrease in the cost estimate for the Great Bend, Kansas, project.

General LEE. Sir, due to the extreme flatness of the terrain, more detailed backwater studies, resurveys and review of topography were necessary. Through this review the Federal portion of the project cost estimate was reduced by $6,300,000, primarily, because of the elimination of floodgates and refinement in design and cost estimates, $ 2,447,000; a decrease of 8,100 feet in the Little Walnut Creek diversion channel, $2,002,000; and the elimination of 30,000 feet of the Little Walnut Creek and airport ring levee, $1,851,000.

PUERCO RIVER AND TRIBUTARIES, GALLUP, NEW MEXICO

Mr. BEVILL. Will the Puerco River, Gallup, New Mexico, project be completed this fiscal year as scheduled?

General LEE. Sir, the project was previously scheduled to be completed in May 1990. Due to problems in acquiring the project right-of-way, which resulted in a delay in contract award, we now anticipate completion of project construction in early November 1990, using funds previously appropriated.

ALBUQUERQUE NORTH DIVERSION CHANNEL, NEW MEXICO
(HYDRAULIC DEFICIENCY)

Mr. BEVILL. Please describe the structural modifications that will be made to the Albuquerque North Diversion Channel, New Mexico, to correct the hydraulic deficiency.

General LEE. Sir, structural modifications to the Albuquerque North Diversion Channel consist of adding a concrete diagonal sill across the channel invert; removing an existing concrete access ramp; widening the pilot channel at the end of the project from 50 feet to 400 feet to alleviate backwater effects; adding slope protection to the right bank of the outfall channel; and constructing deflector shields on top of the channel wall downstream of the Camino Inlet. Additionally, a diversion channel will be constructed to divert flows from the Camino Inlet to the La Cueva Inlet, which is located upstream, to reduce the possibility of flood flows escaping the channel at the Camino Inlet.

CLEAR CREEK, TEXAS

Mr. BEVILL. Please explain the increase in the Federal share of fish and wildlife mitigation for the Clear Creek, Texas, project compared to that indicated in last year's justification.

General LEE. Sir, last year the mitigation cost-sharing was inappropriately computed in accordance with the current policy, which provides that mitigation costs be shared at the same ratio as the overall project cost sharing, INCLUDING lands, easements, rights-of-way, relocations and dredged material disposal areas, LERR. Subsequently, it was discovered that the terms of the Local Cooperation Agreement, LCA, provides for mitigation to be cost shared in the same ratio as all other costs of the project, EXCLUDING the LERR. Currently there is an

CLEAR CREEK, TEXAS (Continued)

estimated non-Federal cash contribution requirement of five percent for this work. Therefore, the local share of the mitigation costs is limited to a five percent non-Federal cash contribution. This necessary change in the way the mitigation costs are to be apportioned, resulted in an increase of $936,000 in the estimated Federal cost for mitigation.

Mr. BEVILL. Why has the completion date for the Clear Creek project slipped 18 months?

General LEE. Sir, award of the construction contract for the second outlet gate was delayed six months because the local sponsor did not complete real estate acquisition in a timely manner and the construction period for the gate is 12 months longer than previously estimated. Because of the requirement for this additional time in construction of the second outlet gate, subsequent follow-on contracts, as well as overall project completion, have been delayed.

SIMS BAYOU, HOUSTON, TEXAS

Mr. BEVILL. Do you anticipate any problem in executing the local cooperation agreement for the Sims Bayou, Texas, project?

General LEE. Sir, the Local Cooperation Agreement, LCA, has been negotiated with the local sponsor. Subsequent to these negotiations, language dealing with hazardous and toxic waste, HTW, paragraph has been developed that will be added to this LCA and all others not yet executed. This modification has yet to be negotiated with the local sponsor, Harris County Flood Control District. These negotiations could delay consummation of the LCA.

Mr. BEVILL. The FY 1990 Energy and Water Development Appropriations Act reauthorized the Sims Bayou project because the project cost estimated exceeded the maximum cost growth permitted by Section 902 of P.L. 99-662. Will the new authorization permit completion of the project?

General LEE. Sir, with the application of inflation through the construction period, the reauthorized cost of $244,000,000 has been increased to the budgeted cost estimate of $265,500,000. It is not anticipated that future cost increases will exceed the currently estimated maximum allowable project cost of $314,300,000.

Mr. BEVILL. What caused the large increase in estimated cost?

General LEE. Sir, the cost growth is attributable to price level increases; current cost modifications required by law and attributable to external work by the local sponsor for which local credit has been approved in concept; and project design changes. The project design changes include increases in the quantity and value of real estate; increases in the quantity and scope of bridge and utility relocations; and channel design changes dictated by poor foundation conditions which were unknown earlier.

ACEQUIAS IRRIGATION SYSTEM, NEW MEXICO

Mr. BEVILL. In previous years the Administration has not budgeted funds for the Acequias Irrigation System, New Mexico, project. What change in policy led to its inclusion in the FY 1991 budget request?

General LEE. Sir, the systems are of cultural and historical significance to the Nation, having been in existence since early Spanish Colonization of the area in the seventeenth and eighteenth centuries; are depended upon by small groups of local citizens to irrigate their subsistence crops on small farms each year; play a major role in the overall local economy; and are expected to play a major role in preserving the environment of the area in much the same condition as it exists today. Thus, it would appear that the Acequias Irrigation System project fits well within the Administration's stated goal to place new emphasis on maintaining and restoring the environment.

JOE POOL LAKE, TEXAS

Mr. BEVILL. Last year's justification material indicated that Joe Pool Lake, Texas, project would be completed in June 1990. Why are additional funds required in FY 1991?

General LEE. Sir, the project completion date has been delayed from June 1990 until May 1993 to accommodate the Texas Parks and Wildlife Department's schedule for reconstruction of the historic Penn Farm. Additional fund requirements for the project primarily reflect detail design of the Penn Farm Restoration activities; repair of an embankment slide; repair of distressed and flood damaged roads; and purchase of land in fee in lieu of flowage easements. The requested funds for Fiscal Year 1991 will be used for completion of real estate activities and continuation of the Penn Farm restoration.

RAY ROBERTS LAKE, TEXAS

Mr. BEVILL. What is the unscheduled work at Ray Roberts Lake, Texas, project?

General LEE. Sir, the unscheduled work consists of new recreational facilities at Lewisville Lake, which were initially formulated for the seven-foot raise in the conservation pool. Local sponsors, the cities of Dallas and Denton, supported the concept of a Green Belt between Ray Roberts and Lewisville Lakes in lieu of a portion of the traditional recreation at Lewisville Lake. Construction of these facilities at Lewisville is being held in abeyance pending Congressional action on a post-authorization change report, forwarded to Congress in December 1988, which recommends adding the Green Belt Corridor and deleting a portion of the Lewisville recreational facilities.

BRAZOS ISLAND HARBOR, TEXAS
(Operation and Maintenance)

Mr. BEVILL. Can you explain the large increase in maintenance dredging requirements for the Brazos Island Harbor project?

General LEE. Sir, there is little change in the dredging requirements for this project. In preparation of the Justification of Estimate Sheets we failed to identify the requirement to repair the ends of the North and South Jetties. These repairs are required as a result of damage suffered during the last hurricane and are estimated to cost $1,450,000.

WISTER LAKE, OKLAHOMA
(MAJOR REHABILITATION)

Mr. BEVILL. What is the revised plan for the spillway for the Wister Lake, Oklahoma, major rehabilitation project?

General LEE. Sir, our plan is to repair the erosion damage which has occurred in the spillway discharge chute and to repair any future damage as it occurs. This results in a significant initial cost savings of $15,000,000 over our original plan to construct a new spillway chute with an energy dissipator.

PORT LAVACA, CHANNEL TO RED BLUFF, TEXAS
(Operation and Maintenance)

Mr. BEVILL. The FY 1990 conference agreement, included $250,000 for maintenance dredging of the Channel to Red Bluff, Texas. Is this work proceeding?

General LEE. Yes, sir. Plans and specifications are now being prepared, primarily, only to dredge that portion of the channel which is located in Lavaca Bay. The contract is scheduled to be advertised in April 1990 and dredging expected to begin in June 1990.

WISTER LAKE, OKLAHOMA

Mr. BEVILL. Are you complying with the direction in House Report 101-96 relating to the Wister Lake, Oklahoma, project?

General LEE. Yes, sir. Preparation of the plans and specifications for upgrading the park road below the spillway to provide continued through-access to users of Oklahoma State Highway 270, during periods of high pool levels, is underway. The upgrading design, however, will not provide this through-access during periods of spillway discharge of flood waters. Award of a construction contract is scheduled for the fourth quarter of this fiscal year.

EUFAULA LAKE, OKLAHOMA
(BUG TUSSLE ROAD)

Mr. BEVILL. The FY 1990 Conference Report directed you to improve and maintain Bug Tussle Road at Eufaula Lake, Oklahoma. Is that work proceeding?

General LEE. Yes, sir. The district is currently developing a report addressing alternatives directed at improving the road and will submit this report to the Southwestern Division for review in June 1990. The Division office is scheduled to submit the report for review and approval to higher authority in the last quarter of Fiscal Year 1990. Approval is required before proceeding with construction.

BATESVILLE, ARKANSAS
(Section 205 Project)

Mr. BEVILL. Are you proceeding with construction of the White River at Batesville, Arkansas, Section 205 project as directed by Congress?

General LEE. Sir, we are working on plans and specifications which are scheduled for completion in April 1990. The Local Cooperation Agreement is scheduled to be signed in May 1990. Award of the construction contract is scheduled for September 1990, assuming that the local sponsor, the City of Batesville, is able to furnish the local cooperation requirements by that time.

WALLISVILLE LAKE, TEXAS

Mr. BEVILL. Four million dollars were included in the FY 1990 Appropriations Act to resume construction of the Wallisville, Texas project. Is work proceeding as directed in the law?

General LEE. Sir, award of a continuing contract for the non-overflow dam on the project is scheduled for June 1990, in compliance with the Energy and Water Development Act, 1990, Public Law 101-101. The recent discovery of endangered bald eagles and eagles' nests within the project may, however, have an effect on this schedule because of the time allowances required for formal consultation as provided for by the Endangered Species Act of 1973, Public Law 93-205, as amended.

Mr. BEVILL. How does the Corps intend to carry out the instructions contained in that legislation that said ". . . the Chief of Engineers is directed to resume construction on the Wallisville Lake project in Texas, and to award continuing contracts until construction is complete . . ."?

General LEE. Sir, we will award an $8,400,000 construction contract on the project as directed by law. Bidders, however, will be notified that the budget provides no new funds to continue the contract after Fiscal Year 1990 funds are exhausted.

WALLISVILLE LAKE, TEXAS

Mr. BEVILL. What are the Corps' capabilities for construction and engineering and design for FY 1991 for the Wallisville project?

General LEE. Sir, subject to the usual qualifications, $9,200,000 can be used on the Wallisville Lake, Texas project in Fiscal Year 1991. Of this amount, $6,700,000 would be used for construction and $2,500,000 would be used for engineering and design activities.

Mr. BEVILL. Has the Corps completed the design documents for the remaining elements of the Wallisville project?

General LEE. Sir, only the design for construction scheduled to begin this year has been completed. Design documents and development of contract plans and specifications for remaining project features have not been developed beyond the basic concept stage.

Mr. BEVILL. Do you have sufficient funds in FY 1990 to complete the design phase of the Wallisville project?

General LEE. No, sir. Funds appropriated for Fiscal Year 1990 will be used primarily for construction of the non-overflow dam element of the project.

Mr. BEVILL. How much is needed for completion of engineering and design for the project?

General LEE. Sir, $3,113,000 will be required to complete engineering and design of the Wallisville Lake, Texas project.

QUESTIONS SUBMITTED BY CONGRESSMAN WATKINS

DENISON DAM-LAKE TEXOMA, OKLAHOMA AND TEXAS
(Restudy)

Question. When will the final document be completed on the Denison Dam Restudy?

Answer. The final feasibility report is scheduled to be completed in September 1990.

Question. I understand you are reconsidering the addition of up to 3 new hydroelectric generating units at Denison Dam. Are these units economically feasible?

Answer. Initial studies indicated that the additional units appeared to be economically feasible; however, the economic feasibility is being reevaluated based on information received from the North Pacific Division Office. The results of this reevaluation will be included in the feasibility report.

Question. What is their cost individually and collectively?

Answer. Except for the one-unit addition which is estimated to cost $29,600,000 (October 1988 prices), we have not considered plans for adding units one at a time. Estimates of the collective costs of the two and three-unit plans are $55,000,000 and $80,000,000, respectively. These estimates reflect economies of scale; therefore, the collective costs resulting from incremental additions would undoubtedly be greater.

CRUTCHO CREEK, OKLAHOMA

Question. I understand the reconnaissance report and draft feasibility cost sharing agreement for the Crutcho Creek study are scheduled to be complete in March 1990. The reconnaissance phase is scheduled for completion in September 1990. Are you meeting those schedules?

Answer. The Reconnaissance Report and draft Feasibility Cost Sharing Agreement are currently on schedule for completion in March 1990. Extra effort will be made in the negotiations with the local sponsors to obtain a signed Feasibility Cost Sharing Agreement, which marks completion of the reconnaissance phase of the study, this summer.

CRUTCHO CREEK, OKLAHOMA

Question. Is Tinker Air Force Base a potential cost sharing sponsor for the Crutcho Creek feasibility study?

Answer. Funds for the feasibility study contributed by Tinker Air Force Base would be considered a part of the Federal share of the cost, not a part of the non-Federal share. The preliminary estimated cost of the feasibility phase is $800,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Local sponsors have been notified of this requirement.

RED RIVER BASIN, ARKANSAS, TEXAS, LOUISIANA, AND OKLAHOMA
COMPREHENSIVE STUDY
AND
ARKANSAS RIVER AND TRIBUTARIES, SOUTH CENTRAL AND SOUTHEAST AREAS OF OKLAHOMA
COMPREHENSIVE STUDY

Question. What timetable does the Corps have for completion of the Executive Summary of all the comprehensive water studies?

Answer. The Executive Summary of the feasibility studies will be completed in February 1990.

Question. Are there further actions that the Corps must take to wrap-up the studies?

Answer. No, the technical report for each study was completed in March 1989. No further activity on either study is planned after completion of the Economic Impact Plan, being accomplished by contract by the RedArk Development Authority, which is scheduled for completion in December 1990.

CANADIAN RIVER AND TRIBUTARIES
OKLAHOMA, TEXAS, AND NEW MEXICO
(Deep Fork River)

Question. It is my understanding that a local group in Oklahoma is exploring the feasibility of the creation of a wildlife refuge along the Deep Fork River in Okmulgee, Okfuskee and Lincoln Counties. Should the funding become available and the local landowners are supportive of the project, will the Corps work with the principal entities involved to reach an agreement that will preserve future navigation and potential reservoir site opportunities?

Answer. Preliminary plans for the proposed wildlife refuge have been received and will be evaluated for compatibility with navigation and other water resources development plans considered in past studies. The Corps will continue to work with all entities in the interests of environmentally sustainable development.

CANADIAN RIVER AND TRIBUTARIES
OKLAHOMA, TEXAS, AND NEW MEXICO
(Deep Fork River)

Question. The Corps worked with the U.S. Fish and Wildlife Service to reach a similar agreement on the Little River as part of the Little River National Wildlife Refuge. Could the Deep Fork River Project possibly meet Corps criteria for environment type projects as proposed in this FY 91 budget?

Answer. Definitive criteria for environmental type projects have not been finalized; however, a navigation project on the Deep Fork River could possibly be designed to meet both established environmental criteria and navigation needs.

Question. Are there other projects in Oklahoma that might meet the criteria established for environmentally sensitive type projects?

Answer. An assessment of potential environmentally sensitive projects in the State of Oklahoma has not been conducted. After establishment of definitive criteria, it is anticipated that all existing and proposed Corps of Engineers' projects will be reviewed to insure they are either modified, if completed, or constructed, if not built, in a manner that will result in a project that meets the definition of environmentally sustainable development. Environmentally sustainable development was defined in 1987 by the World Commission on Environment and Development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

LUKFATA LAKE, OKLAHOMA
(Leopard Darter Studies)

Question. What further study is being done by the Corps or other entities that the agency has agreements with, that will enhance opportunities to expand the leopard darter population?

Answer. Under the Lukfata Lake, Oklahoma, Hydropower study, the Corps has an ongoing propagation study with the U.S. Fish and Wildlife Service and Oklahoma State University to research the possibility of raising the leopard darter in a hatchery for eventual release to its native streams.

Question. It is my understanding that recent samplings may be yielding larger populations of leopard darters. Could you comment on these findings?

Answer. The ongoing studies are not advanced far enough to predict the potential for expanding the leopard darter population. Leopard darters have been collected at 46 sites. In June 1988, however, researchers could not find a sufficient number of darters for the laboratory study. Therefore, there is currently no evidence that the leopard darter population is increasing.

KEYSTONE DAM TO TULSA, ARKANSAS RIVER, OKLAHOMA
(Tulsa - West Tulsa Levees)

Question. I am aware of the potential for catastrophic loss of life and property behind the failing Tulsa - West Tulsa levees in the vicinity of Tulsa should a major flood occur as it did in 1986. What is the status of your studies to rehabilitate those levees and protect the thousands of citizens residing within those threatened areas?

Answer. Studies which included evaluation of the Tulsa - West Tulsa levees have been completed and have determined that there are numerous pipes and culverts throughout the levees that are in need of rehabilitation and replacement. The improvements required, however, are the responsibility of the Tulsa County Drainage District No. 12, in accordance with maintenance assurances provided to the United States in 1943.

Question. What would be the cost of that work?

Answer. Based on reconnaissance study findings, the estimated rehabilitation cost is about $1.25 million.

RED RIVER WATERWAY, INDEX, ARKANSAS TO DENISON DAM, OKLAHOMA
BANK STABILIZATION

Question. What is the status of FY 90 funds appropriated for the purpose of bank stabilization on the Red River?

Answer. Funds to resume Preconstruction Engineering and Design on the Red River Waterway, Index, Arkansas to Denison Dam, Texas Bank Stabilization project have not been allocated to the Tulsa District.

Question. Why are these funds not being allocated for use on this project?

Answer. The project would produce only bank stabilization benefits, which are not considered to be high priority benefits. Also, the apparent lack of economic justification, based on a cursory review of the economics of the project, and a lack of recent strong local support for the project do not warrant the expenditure of Federal funds at this time. Accordingly, no funds have been allocated for the purpose of resuming Preconstruction Engineering and Design on this project.

SAND LAKE, OKLAHOMA

Question. In September of 1984, the Corps completed a reconnaissance study of the Caney River Basin and found that the Sand Lake project would provide a viable solution to the Basin's water supply needs and also alleviate flooding problems. The report recommended that study of Sand Lake be continued under Advanced Engineering and Design. However, the project was deferred pending resolution of an Osage Indian Tribe mineral rights issue and was subsequently eligible for deauthorization as of December 31, 1989, under the provisions of Section 1001(b) of PL 99-662 (the Water Resources Development Act of 1986). Local interests have shown a great amount of support for the Sand Lake Project and have continued negotiations with the Osage Council in an attempt to resolve conflicts over mineral rights. Deauthorization of Sand Reservoir only serves

SAND LAKE, OKLAHOMA (Continued)

to frustrate these negotiations and, ultimately, the construction of this much needed water development project.

Given the high degree of local support for Sand Reservoir and the unusual circumstances that have stymied progress towards construction it appears that a mistake is being made by deauthorizing this project. What specific action must be taken to rectify this matter?

Answer. The list of projects eligible to be deauthorized in accordance with the Water Resources Development Act of 1986 has never been published in the Federal Register. New guidance is being developed on the interpretation of project funds expenditure which could change the list of projects eligible for deauthorization.

Question. It is my understanding that local interests continue to show a great amount of support for the Sand Lake Project and have continued negotiations with the Osage Council in an attempt to resolve conflicts over mineral rights. Deauthorization of Sand Reservoir only serves to frustrate these negotiations and, ultimately, the construction of this much needed water development project.

Given the high degree of local support for the Project and the unusual circumstances that have stymied progress towards construction, I would recommend that the Corps take a second look at these actions.

Answer. When the new guidance is received, the Sand Lake project's eligibility will be reviewed.

FRY CREEKS, BIXBY, OKLAHOMA

Question. I am aware of the many floods that have occurred in Bixby over the years. How will your project help the City of Bixby with this problem?

Answer. The Fry Creeks project would modify the present channels of Fry Creek 1 and Fry Creek 2 so that they would carry the 100-year flow within their banks to their confluence with the Arkansas River. The project would minimize the flooding potential from both Fry Creeks in North Bixby.

Question. When can the City of Bixby expect to see the project constructed?

Answer. Preconstruction Engineering and Design of the project is currently scheduled to be completed in January 1991. The project could be eligible for a new construction start in Fiscal Year 1992.

RED RIVER BASIN CHLORIDE CONTROL
TEXAS AND OKLAHOMA

Question. The 1986 WRDA authorized construction of the remaining elements of the Red River Chloride Control Project at full Federal cost subject to a favorable finding of the effectiveness of Area VIII. A favorable report on the effectiveness of Area VIII has been available since August 1988 and yet no funds were included in the administration's budget for this project. What is the administration's position on this project?

Answer. It is the Administration's position that this project is for the purpose of providing water supply and, thus, has a lower priority for Federal funding than flood control and navigation projects.

Question. Is the Corps ready to initiate construction if Congress provides the funds?

Answer. If funds were made available in law, the Corps could initiate construction of the low flow dam, pump station and access road of Area X and the access road at Area VII in the first year of funding. Engineering and design could also be resumed on the remaining areas.

Question. Does the Project's end results meet the criteria of an environmental project as defined by the Administration?

Answer. The criteria for environmental type projects has not been finalized. Although it is not clear whether reductions in water chloride content due to the Red River Basin Chloride Control Project would result in general environmental enhancement of the Red River Basin downstream of the chloride control areas. The project would improve the quality of the water supply for agricultural, municipal and industrial use.

ARKANSAS RIVER BASIN CHLORIDE CONTROL
OKLAHOMA AND KANSAS

Question. What is the status of studies being done with regard to chloride control in Northern Oklahoma and with relation to the Arkansas River?

Answer. General Design Memorandum studies for the Arkansas River Basin Chloride Control elements were completed in September 1981. The General Design Memorandum showed no chloride control projects in the Arkansas River were economically justified. These elements were reclassified from the "active" to the "deferred" category on 9 January 1984. Subsequently, the Water Resources Development Act of 1986, Public Law 99-662, authorized the Red River Basin elements and the Arkansas River Basin elements as separate projects with separate authority under Section 203 of the Flood Control Act of 1966.

Question. When will a report be finished?

Answer. The project is in the deferred status, therefore, no reports are scheduled at this time.

ARKANSAS RIVER BASIN CHLORIDE CONTROL
OKLAHOMA AND KANSAS

Question. Are there potential holding sites for salt sedimentation?

Answer. Four potential chloride holding sites were identified in the Arkansas River Basin.

Question. If so, where have sites been identified?

Answer. Sites were located in Area I in the vicinity of Cherokee, Oklahoma; in Area II and in Area III in the vicinity of Freedom, Oklahoma; and in Area IV south of Okeene, Oklahoma.

Question. What has been learned as to how these structures would benefit flood control downstream at Lake Keystone?

Answer. Studies indicate there is little flood protection provided by development of the Arkansas River Basin Chloride Control project since the primary purpose of the project is water quality improvement.

SARDIS LAKE, OKLAHOMA
(Daisy Road)

Question. What is the status of completion of the Daisy/Sardis Road?

Answer. The access road from Sardis Dam to Daisy, Oklahoma, is complete except for seeding, sodding, mulching, guardrails, striping, and final cleanup. The scheduled completion date for this work is May 1990.

Question. Will additional appropriated dollars be needed from the Congress to complete the project?

Answer. An additional $725,000 is needed for construction modifications to correct drainage problems and to compensate the contractor for unanticipated rock excavation and quantity overruns. A reprogramming action requesting these funds is currently being processed to the Committee.

PARKER LAKE, OKLAHOMA

Question. What is the current status of the Parker Lake Project?

Answer. Preconstruction Engineering and Design was completed in January 1989. No further progress toward construction of the project can be made until a firm commitment is obtained from a sponsor for flood control and water supply. The State of Oklahoma is the potential sponsor and they are coordinating with potential water users in the area for financial support of the project.

Question. What is the status of discussions on a LCA?

Answer. Tulsa District submitted a draft Local Cooperation Agreement, LCA, to the potential sponsor, the Oklahoma Water Resource Board, on 30 January 1990.

MINGO CREEK, TULSA, OKLAHOMA

Question. To date the government has appropriated $17,145,000 to the Mingo Creek local protection project. I am aware that the Mingo Creek Watershed currently experiences significant flooding every 2-3 years in an urbanized area of approximately 3,100 homes. In May 1984, the flood of record caused an estimated $125,000,000 in damages and several lives were lost. What is the status of this critical project to protect the thousands of citizens residing in this area and the millions of dollars worth of property?

Answer. Construction was initiated on the 36th Street North Channel contract in September 1988. This portion is currently 98 percent complete. Construction on the Audubon Creek tributary was initiated in May 1989 and is currently 70 percent complete. A contract for construction of mainstem detention sites located immediately south of Mingo Road and 11th Street was awarded in September 1989 and is currently 20 percent complete. The construction contract of the mainstem detention site located at the northwest corner of the intersection of Interstate Highway 44, I-44, and 21st Street will be awarded in February 1990. The construction contract for mainstem detention sites located at Rockwell Park, immediately south of the Mingo Mainstem crossing of I-44 on the west bank, and the Longview Lake Estates detention site, located on the east side of the Mainstem north of 31st Street, is currently scheduled for May 1990. Engineering and design work is continuing on the Mill Creek basin, located slightly south west of the intersection of 71st Street and Sheridan Road through McClure Park to the Mill Creek confluence north of 11th Street; and the Southern Tributaries of the Mingo drainage basin, south of 41st Street between Memorial Street and Garnett Avenue to 71st Street South. Engineering and design will begin this fiscal year on the Brookhollow Tributary, an area east of Mingo Road to 129th Street East and from 21st Street to 41st Streets. The entire Mingo Creek project is five percent complete and is currently scheduled for completion in September 1995.

SKIATOOK LAKE, OKLAHOMA
(Recreation Areas)

Question. A number of constituents have informed me that the Skiatook Lake, Oklahoma, project currently has limited development for public recreation. As this area has enormous potential there is a need to provide the public treated water at recreation areas. What would be the cost of providing water to those areas?

Answer. One public use area, Tall Chief Cove, currently has a treated water supply. Providing water to the remaining seven public use areas is estimated to cost $1,200,000.

Question. When will the balance of recreation facilities be constructed?

Answer. When a local sponsor indicates a willingness to cost share and operate and maintain the facilities, the Corps would consider budgeting funds for the development of a cost sharing agreement and construction of the remaining facilities. In the interim, the remaining recreation facilities are considered to be unscheduled.

SKIATOOK LAKE, OKLAHOMA
(Recreation Areas)

Question. What are the costs associated with each component of the recreation development plan for Skiatook Lake?

Answer. The estimated cost, at October 1989 Price Levels, to complete each area is shown in the following table:

RECREATION AREA	AMOUNT
Tall Chief Cove	$ 1,910,000
Black Dog Park	390,000
Bull Creek	730,000
Twin Points	6,800,000
Skiatook Point	800,000
Hominy Landing	2,220,000
Osage Park	2,280,000
Quapaw Park	112,000
TOTAL:	$ 15,242,000

Question. What cost sharing agreements are already in place?

Answer. There are no cost sharing agreements in place for the Skiatook Lake recreation.

Question. What additional LCA's would be required to complete the development?

Answer. To complete the recreation development at Skiatook Lake, one or more Local Cooperation Agreements with a local sponsor will be required. Should local sponsors elect to develop the remaining facilities in increments, each increment would need to be a usable facility and would have to be covered by a separate Local Cooperation Agreement.

DENISON DAM - LAKE TEXOMA, TEXAS AND OKLAHOMA
(Lake Texoma Advisory Committee)

Question. The Lake Texoma Advisory Committee has submitted formal recommendations concerning the lake. What were those recommendations?

Answer. The Lake Texoma Advisory Committee submitted eighteen recommendations concerning the lake. Basically, the recommendations included continued efforts to control pollution, including chloride control; continued studies of operational procedures, including navigation, power, allocation of resources, fish and wildlife enhancement, recreation, and erosion; and suggestions concerning methods of allocating costs and providing 100 percent Federal funding for remedial work.

DENISON DAM - LAKE TEXOMA, TEXAS AND OKLAHOMA
(Lake Texoma Advisory Committee)

Question. What does the Corps intend to do to implement these findings?

Answer. Each recommendation is being evaluated by Corps personnel. Those which have merit and can be carried out without changes in regulations and laws will be implemented to the extent funding will allow. Others will be further reviewed to determine changes in policy and/or law that will be necessary for implementation. An initial response to these recommendations will be given to the Lake Texoma Advisory Committee members on 27 February 1990.

Question. Which of these recommendations, if any, require legislative action to be implemented?

Answer. Preliminary review suggests that the following recommendations would require either State or Federal legislative action:

RECOMMENDATION	RECOMMENDATION SUBJECT
No. 3	Enforcement of septic tanks and boat toilet discharges
No. 10	Reduction of chloride levels
No. 15	100 percent Federal funding for stabilizing eroding sections of the Red River

DENISON DAM-LAKE TEXOMA, TEXAS AND OKLAHOMA
(Pennington Cove)

Question. General, as you are aware I have worked extensively on the Pennington Creek Cove Dredging Project at Lake Texoma. This project is important to the City of Tishomingo, Oklahoma, and the silting of this former Corps public use area is impacting the economy of the area. I understand you may not now be able to complete construction. What is the status of the project?

Answer. The recommended solution to the silting problem was to provide limited dredging and a sediment control structure to raise the water level in the cove. The sediment control structure is not authorized, therefore, work on this project has been suspended pending enabling legislation.

Question. Specifically, what legislative action is required to be able to continue this project?

Answer. Authorization by public law is needed to use Federally appropriated funds for construction of a structure to raise the water level in the cove.

DENISON DAM-LAKE TEXOMA, TEXAS AND OKLAHOMA
(Visitor Center)

Question. Funds have been appropriated for the design and construction of a visitors center and ranger station for Lake Texoma. What is the status of the project?

Answer. A report containing preliminary plans and a cost estimate for the facility is currently under review by higher authority. Development of requested additional justification for construction of the facility is nearing completion and will be forwarded in March 1990 to higher authority for review and subsequent approval of the report. Further design effort and ensuing construction are being held in abeyance pending approval of the report.

EUFAULA LAKE BRIDGE REPLACEMENT, OKLAHOMA
(Muddy Creek Bridge)

Question. This committee provided funding to the Corps for the replacement of Muddy Creek Bridge on Eufaula Lake, Pittsburg County, Oklahoma. What is the status of this project?

Answer. The total estimated cost of this bridge is $1,320,000. Design was completed in September 1986 and only a minor effort remains to update it to current criteria and standards. Cost sharing of 25 percent is required from the local sponsor, the State of Oklahoma. Coordination with the State of Oklahoma is continuing.

Question. Has the Local Cooperation Agreement with the State of Oklahoma, Department of Transportation, been completed?

Answer. No, the Local Cooperation Agreement has not been completed for the Muddy Creek Bridge.

Question. If not, what timeline do you expect for completion?

Answer. Some delay in obtaining a Local Cooperation Agreement with the state has been experienced. Until recently the state was unwilling to sign the agreement without making major revisions in the standard format. As a result of continuing coordination, however, they are now willing to sign the standard Local Cooperation Agreement with minor changes. This draft Local Cooperation Agreement should be available for review in March 1990.

Question. Will additional appropriated funds be necessary for completion of the project?

Answer. Subject to the usual qualifications, the capability for the Eufaula Lake Bridge Replacement project is $0 pending consummation of a Local Cooperation Agreement between the State of Oklahoma and the Assistant Secretary of the Army for Civil Works.

EUFAULA LAKE, OKLAHOMA
(VISITOR CENTER)
(Crowder Point Road)

Question. It is my understanding that the Corps is in agreement that the road and associated measures at Crowder Point on Lake Eufaula is not to be cost-shared. What is the current status of the project?

Answer. The Water Resources Development Act of 1986, Public Law 99-662, requires that the cost of the road and utilities in the Crowder Point public use area be cost shared. This road is included in the draft Local Cooperation Agreement on the proposed Eufaula Lake, Oklahoma, Visitor Center that was submitted to the State of Oklahoma in November 1989.

Question. When do we expect it to be completed?

Answer. When the Local Cooperation Agreement is signed by both the State of Oklahoma and the Assistant Secretary of the Army for Civil Works, design of the road will be started by the Corps. Construction completion should be accomplished in about two years from the date of signing.

EUFAULA LAKE, OKLAHOMA
(Erosion Control)

Question. I understand you have completed the erosion control work at Southport and Beavers Lodge subdivisions. There is a great deal more of this type of work to be done. When do you expect to start work on additional critical areas?

Answer. The work at Southport and Beavers Lodge subdivisions was constructed as a pilot project to determine the most efficient and cost effective method of erosion control. Since finishing this pilot project, a preliminary study report of the erosion problem has been completed which identified 22 miles of shoreline in need of some type of protection. Work on these remaining areas is subject to a review of Federal policy regarding the protection of private property from shoreline erosion. No additional work will be started prior to completion of that review.

Question. What will be the estimated cost for this work?

Answer. The estimated cost to provide erosion control to the 22 miles of shoreline identified in the study report is approximately $11,000,000.

EUFAULA LAKE, OKLAHOMA
(Bug Tussle Road)

Question. I am aware that the road near Bug Tussle, Oklahoma, that provides access to the Juniper Point public use area on Lake Eufaula is being damaged by wave action from the lake and by flooding. Last year, this committee, as part of the FY 1990 Energy and Water Appropriations Conference Report directed that the Corps take such steps as necessary to make repairs to this road in such a manner that would ultimately solve the continuing problems associated with it from within the Eufaula O&M account. General, what is the status of the repair?

Answer. A report addressing the alternatives for repair of the road is currently being developed for submission to higher authority. Under terms of a relocation contract signed in 1962, however, Pittsburg County agreed to maintain and keep this county road open, even though they knew the road was subject to frequent flooding. Thus, approval of the report will be required to prepare plans and specifications; award a construction contract; and assume maintenance responsibility for the road.

Question. What is the status of the resolution of the continuing problems associated with the Bug Tussle Road??

Answer. Headquarters is aware of the problems associated with accomplishing the work in accordance with the language contained in the Conference Report, House Report 101-235. No decision regarding the Corps' authority to do the work is anticipated, however, until after the report, scheduled for completion by the district in June of this year, is reviewed by higher authority.

EUFAULA LAKE, OKLAHOMA
(Juniper Point)

Question. Could you please elaborate on the details surrounding the closure of the road at Juniper Point?

Answer. For the last ten years, a portion of Juniper Point had been a place where many young adults congregated at night to drink, use drugs, and vandalize park facilities. These activities resulted in families avoiding this park and going to other areas. Removal of the vandalized facilities provided large open places to park vehicles and only increased alcohol and drug parties. Removal of the road eliminated vehicle access to the area and made it less desirable to be used for illegal purposes.

Question. Was it necessary to remove such a large number of picnic tables that will not be relocated from the closed area to the non-restricted area?

Answer. In order to prevent damage to the remaining usable picnic tables in the closed area, all these tables were moved to the project office compound. Those concrete tables that had sustained substantial damage were later used in lieu of riprap in the erosion repair. As the demand warrants, the remaining tables which are stored at the project office compound will be relocated to the various parks, including the non-restricted area.

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Water Supply Contracts)

Question. How many Oklahoma communities and companies have water supply storage contracts which require them to cost share in major rehabilitation projects?

Answer. Twenty-five Oklahoma communities and companies have water supply storage contracts requiring cost sharing of major rehabilitation work during the water supply contract repayment period.

Question. Please provide a list of these companies and communities, the reservoir in which they have water supply storage, and the effective date of their contracts.

Answer. The following companies and communities have water supply storage contracts:

COMPANY/COMMUNITY	RESERVOIR	EFFECTIVE DATE
Oklahoma Tourism & Recreation Department	Broken Bow	July 13, 1988
Copan Public Works Authority	Copan	June 22, 1981
Warner Utilities Authority	Eufaula	October 25, 1989
Bristow Point Property Owners Association, Inc.	Eufaula	June 29, 1987
McAlester Public Works Authority	Eufaula	June 29, 1987
Public Service Company of Oklahoma	Eufaula	September 26, 1985
Longtown Rural Water & Sewer District #1	Eufaula	November 19, 1984
Pittsburg County Public Works Authority	Eufaula	October 8, 1981
Perum Public Works Authority	Eufaula	April 17, 1981
Rural Water, Gas, Sewer & Solid Waste Management District #8, McIntosh County	Eufaula	December 19, 1980
City of Bartlesville	Hulah	November 12, 1982
City of Claremore	Oologah	June 4, 1988
Rural Water District #4 Rogers County	Oologah	April 12, 1985
City of Collinsville	Oologah	April 4, 1985
Public Service Company of Oklahoma	Oologah	March 25, 1985
Rural Water District #1, Nowata County	Oologah	January 10, 1985
Tulsa Metropolitan Water Authority	Oologah	December 12, 1984
Rural Water District #3 Rogers County	Oologah	September 25, 1984
Sand Springs Municipal Authority	Skiatook	March 13, 1988
Sapulpa Municipal Authority	Skiatook	March 13, 1988
Skiatook Public Works Authority	Skiatook	March 13, 1988
S.A.R. Water Corporation	Skiatook	May 29, 1987
Stepp and Ross Land Company	Tenkiller	November 21, 1989

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Water Supply Contracts)(Continued)

COMPANY/COMMUNITY	RESERVOIR	EFFECTIVE DATE
Tenkiller Water Company, Inc.	Tenkiller	December 5, 1989
Applied Energy Services Shady Point, Inc.	Wister	February 5, 1987

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(PVIA Pipeline)

Question. With the rehabilitation of the Wister Lake Project, Oklahoma, underway, it has come to my attention that the Poteau Valley Improvement Authority (PVIA) has a 20-inch raw water intake line that could be impacted by construction. Who will bear the costs?

Answer. The owner, Poteau Valley Improvement Authority (PVIA), under terms of the existing easement, which allows the waterline to be placed on the embankment, must move the line because it is in the best interests of the Government for operation of the project. Because of the impact of the rehabilitation project on PVIA's line, the Government has recommended that PVIA relocate the line.

Question. What is the cost estimate of moving the pipeline if such a relocation is required?

Answer. The estimated cost to relocate the line is $400,000.

WISTER LAKE, OKLAHOMA
(Major Rehabilitation)
(Contractor Payments)

Question. Concerning repair of Wister Lake dam, near Wister, Oklahoma, which is currently underway, we have a problem with non-payment to several trucking companies by a sub-contractor on that project. The Tulsa District Office has been helpful and is attempting to facilitate a resolution to the problem. If not resolved, this matter will bankrupt a couple of the companies, and financially impair others. What is the current situation with respect to payment to the truckers?

Answer. Tulsa District has determined that the trucking companies are due payment either from the prime contractor's bonding company or the subcontractor's bonding company. The issue of which bonding company or companies will make payment may have to be settled through the judicial system.

Question. When can these folks expect payment?

Answer. When the bonding company or companies will settle with the trucking companies is not known.

BROKEN BOW LAKE, OKLAHOMA
(Trout Fishery Study)

Question. A three-year trout fishery study is currently underway in cooperation with the Oklahoma State Department of Wildlife Conservation below Broken Bow Lake. What is the current status of the project from a Corps perspective including ongoing water releases under authority of a Memorandum of Understanding which is in effect?

Answer. One year of water releases under an interim Memorandum of Understanding, MOU, has been completed. The first year of the trout fishery was considered a success and the local economy was boosted from the activities. A draft MOU for the remaining two years is under review. Upon consummation of the MOU, the Corps is prepared to make water releases beginning in May 1990.

Question. Does the Corps see any problem associated with renewing that memorandum on an annual basis for the specified study period?

Answer. There are currently no problems associated with renewal of the Memorandum of Understanding that have been identified.

Question. How much water is available currently from the Corps for the project?

Answer. The current release of 140 cubic feet per second for the program requires approximately 38,000 acre-feet of water per year from Municipal and Industrial water supply storage. Approximately 144,000 acre-feet of uncontracted water supply storage remains available in the project at the present time.

Question. What is available from SWPA?

Answer. None of the Southwest Power Administration's contracted 317,320 acre-feet of storage for hydropower is officially available for the trout fishery; however, water used to generate power does provide an important part of the trout fishery water.

Question. Would additional water releases for the fishery fit into the Corps interest in pursuing projects that have benefit for the environment?

Answer. Additional water releases would improve aquatic and riparian habitat downstream which would fit into the Corps' interest in pursuing projects to benefit the environment.

Question. Will additional releases require reallocation of the pool?

Answer. Releases currently requested by the Oklahoma Department of Wildlife Conservation can be supplied from uncontracted Municipal and Industrial water supply storage in the reservoir. To insure water storage space in the reservoir for continuation of the Trout Fishery Program on a permanent basis, reallocation of the reservoir storage would be required.

BROKEN BOW LAKE, OKLAHOMA
(Trout Fishery Study)

Question. Will it be necessary for recreation to be added as a project purpose if further releases are necessary?

Answer. Recreation is presently a project purpose and will not require additional authorization. Continuation of the program on a permanent basis, however, would probably require reallocation of a portion of the Municipal and Industrial water supply storage by Congressional authorization.

BROKEN BOW LAKE, OKLAHOMA
(White Water Rafting)

Question. Is the U.S. Army Corps of Engineers opposed to any recreational development below the spillways of their dams?

Answer. The Corps is not opposed to recreational development below the spillways, provided sufficient separation is allowed to prevent adverse impact on the operation of the spillways for flood control or other authorized uses. Where safety can be reasonably assured, the Corps has provided recreational facilities downstream of the spillway. The facilities include such items as fishing piers, parking lots, trails, and canoe ramps.

Question. Are there any Corps of Engineers projects which allow rafting below Corps lake spillways?

Answer. Yes. The Water Resources Development Act of 1988, Public Law 100-676, provides for downstream white water recreation at the following projects:

PROJECT

Beechfork Lake, West Virginia
Bluestone Lake, West Virginia
East Lynn Lake, West Virginia
Francis E. Walter Dam, Pennsylvania
Jennings Randolph Lake (Bloomington Dam), Maryland and West Virginia
R. D. Bailey Lake, West Virginia
Savage River Dam, Maryland
Youghiogheny River Lake, Pennsylvania and Maryland
Summersville Lake, West Virginia
Sutton Lake, West Virginia
Stonewall Jackson Lake, West Virginia

Approval of the temporary water releases for this type of activity is vested in each Division Engineer; therefore, it would be difficult to identify every project in the nation that allows rafting.

RECREATION AT CORPS PROJECTS

Question. Has the Corps of Engineers ever amended the master plan to provide for recreation in a flood control area?

Answer. Yes, master plans are sometimes amended to provide for recreation in the flood control pool. On projects where flood control is an authorized purpose, most parks on the lake are constructed partly or totally within the flood control pool.

Question. If so, at what projects and under what conditions?

Answer. Most of the reservoir projects throughout the nation with recreation as an authorized purpose have master plans or amended master plans to provide for recreation in a flood control area. Most amendments provide for changes in flood control areas located upstream from the dam. In order to amend the master plan to change a downstream area from project operations to recreation for white water rafting, a detailed evaluation is required. This evaluation must consider the following items as a minimum:

ITEMS TO BE CONSIDERED

1. Impacts on authorized project purposes
2. Impacts associated with modifying releases on:
   a. Water quality
   b. Recreation, including fishing, swimming, and boating, other than white water rafting
   c. Project lands, lands adjacent to the project, and downstream areas required in white water operations and access areas
   d. Responsibility and potential for personal injuries and property damage, and precautionary measures which can be taken to prevent such injuries and damages
   e. Increased costs of operation
   f. Other benefits foregone
   g. Comments of interested parties
   h. River management plans, if any.

BROKEN BOW LAKE, OKLAHOMA
(White Water Rafting)

Question. Why has it taken the Corps almost a full year to begin considering the proposed recreational development below the Broken Bow Dam?

Answer. When this development was first proposed, there was an existing agreement with the Oklahoma Department of Wildlife Conservation for a trout fishery study located in the same area as the proposed recreational development.

BROKEN BOW LAKE, OKLAHOMA
(White Water Rafting)

Question. Is it true that the Corps of Engineers believed that the Oklahoma Department of Wildlife and Conservation (ODWC) would not agree to a simultaneous study with both the fishery and raft ride, and delayed any formal review or public meetings because of this belief? As of last week, the ODWC had no official position on the matter. In fact, the raft ride could increase the number of users of the state effort thereby making their venture more economically justifiable.

Answer. Yes, the Oklahoma Department of Wildlife Conservation, ODWC, initially advised the Corps that they were concerned that the proposed white water rafting would jeopardize the trout fishery study. Since there was an existing agreement, the Corps could not proceed without ODWC's concurrence. On 27 November 1989, ODWC notified the Corps that their position had changed and they no longer objected to testing white water rafting.

BROKEN BOW LAKE, OKLAHOMA
(White Water Rafting)
(Public Meeting)

Question. Who will comprise the panel at the public meeting on February 17th in Broken Bow?

Answer. The panel will be comprised of representatives from the Corps of Engineers, Oklahoma Department of Wildlife Conservation, and the Oklahoma Tourism and Recreation Department.

Question. What groups will be represented?

Answer. The Corps has no formal listing of what groups will be represented at the meeting. From telephone conversations and written correspondence, however, it is believed that representatives from the offices of Congressman Watkins and Senators Nickles and Boren will be present. Also, representatives from the Oklahoma Wildlife Federation, Dallas Chapter of the Sierra Club, Broken Bow Lake Association, Oklahoma Forestry Department, Oklahoma Water Parks, McCurtain County Rural Water District, and citizens from the local communities are expected to attend.

Question. Is it normal procedure for the Corps to advertise such local interest meetings in another state and several hundred miles away?

Answer. It is normal procedure to make all known interests aware of meetings concerning proposals which would impact an area of the lake in which they have a vested interest. Concerning the white water rafting proposal, both trout fishermen and the Sierra Club have vested interests. Many of these users are in the Dallas metroplex area and were made aware, not by the Corps, but by the people of Broken Bow and Idabel, Oklahoma.

BROKEN BOW LAKE, OKLAHOMA
(White Water Rafting)
(Public Meeting)

Question. Why did the Corps officials indicate at two separate meetings that the determining factor of approval of the rafting proposal would be the local comments, yet it appears the Corps has made an all out effort to generate negative public input from people outside the area who oppose the project?

Answer. The Corps remains neutral on the positive or negative aspects of the proposal. We attempt to gather and assess all comments from all special interest groups and concerned citizens in order to determine the merits or disadvantages of permitting or disallowing implementation of a proposal.

Question. What I want to know is whether the Corps has already made a decision on this project before public comment and other factors have been considered?

Answer. No, the Corps has not made a decision on the proposal. The meeting scheduled for 17 February 1990, and the following 30-day written comment period, are for gathering information to make the appropriate decision.

BROKEN BOW LAKE, OKLAHOMA
(White Water Rafting)
(Increased Revenue)

Question. Is the Corps so flush that additional funds from further development would not be used?

Answer. Additional funds are generally needed and could be utilized at most projects; however, funds generated by concession agreements are not returned to the project. Seventy-five percent of the funds are returned to the local county government with the remaining 25 percent provided to the Treasury of the United States.

CANTON LAKE, OKLAHOMA
(Water Supply Contracts)

Question. The City of Oklahoma City intends to assume the storage rights for Canton Reservoir from the City of Enid, Oklahoma through a transaction approved by the Corps of Engineers. Does the Corps anticipate any problems with this agreement?

Answer. Canton Reservoir, on the North Canadian River in Oklahoma, was authorized by the Flood Control Act of June 28, 1938 for flood control and other purposes. The project was modified by the Flood Control Act of July 24, 1946 for the purpose of authorizing 69,000 acre-feet of irrigation storage. The project was further modified by the Flood Control Act of June 30, 1948 for the purpose of including 38,000 acre-feet of Municipal and Industrial water supply storage for the City of Enid, Oklahoma. As of this date, the City of Enid has not exercised its rights to execute a contract for water supply and the Tulsa District has no knowledge of any activities concerning irrigation needs. The City of Oklahoma City has contracted with the Corps, on an interim use basis,

CANTON LAKE, OKLAHOMA
(Water Supply Contracts)(Continued)

Question. Will legislative action be necessary to make it official?

Answer. The acquisition of permanent rights to the water supply and irrigation storages in Canton Reservoir will require legislative action because the existing authorization specifically assigns the water supply storage to the City of Enid, Oklahoma, and the irrigation storage requires reauthorization to Municipal and Industrial water supply storage. Ultimately, the City of Oklahoma City will need to contract with the Army to purchase the storage.

TULSA DISTRICT
OFFICE CONSOLIDATION

Question. After 22 years of being fragmented and moved 4 times, the Tulsa District is close to consolidating into a single facility. However, I have been informed that the pursuit of a permanent home for the Corps of Engineers in Tulsa has been placed on hold. What are the circumstances surrounding this delay?

Answer. Concern has been expressed on the district's plans to acquire new office space. The specifications of 25,000 square feet per floor excludes existing downtown office space and raises the question about the Corps' sincerity in considering existing space. Given the abundance of unused office space in Tulsa, the appropriateness of constructing a new building has also been questioned.

Question. Some government and defense agencies now have child care and physical fitness facilities available for employees. Are similar facilities to be made available to the employees of the Tulsa Corps of Engineers in their new home?

Answer. Although these facilities are desirable to some employees, they were not included as requirements in the new facility. A factor of the award criteria to determine the best offer for the requested space, however, includes availability of child care and physical fitness facilities for employees.

Mr. BEVILL. The Chair now recognizes Mrs. Boggs.

Mrs. BOGGS. Thank you, Mr. Chairman.

RED RIVER WATERWAY, LOUISIANA, ARKANSAS, OKLAHOMA & TEXAS

INDEX, ARKANSAS TO DENISON DAM, TEXAS

General Lee and gentlemen it is nice to see you. I was just curious about the Red River Waterway, the Bank Stabilization project on which you apparently decided not to spend the monies that were appropriated for Fiscal Year 1990 and for which you have not included any further requests for funds in Fiscal Year 1991.

General LEE. Yes, ma'am. We have two items of interest on that subject. The first is, it is bank stabilization. This is not a high priority item within the Administration's selection procedure.

Second, we have not seen recent evidence of a local sponsor, although we have had discussions in the meetings. I had one of my key staff attend the Red River Waterway meeting Monday. I was there last year.

We have not seen evidence of a local sponsor and it is not a high priority item.

Mrs. BOGGS. From your testimony, the local share would be $76 million. Is that correct?

General LEE. Yes, ma'am, $76 million.

Mrs. BOGGS. And you have no takers for it?

General LEE. No, ma'am.

Mrs. BOGGS. Unfortunately, some of the areas in which the Water Resources Development Act of 1986 demands local cost-sharing, so many of those areas have such bad financial problems, that their public funds are very limited at this time.

General LEE. Yes, ma'am.

Mrs. BOGGS. But you think that actually allows you to not use the preconstruction, engineering and design funds?

General LEE. I received no work allowance for that project. General Kelly may want to answer now or say more later. The reasons I explained were that it did not have a high priority output and there are no local sponsors who even said we would love to do it if we could only get the money.

Mr. BEVILL. Because the President's request did not provide funds to continue the locks and dams on the Red River in the Louisiana area, we are a little worried about the fact that no expenditures are being made on the other portions of the waterway.

Mr. CHAPMAN. Mr. Chairman, I have a series of four questions that Congressman Leath has asked me to submit for the record.

Mr. BEVILL. Without objection, they will be submitted for answering on the record.

[The information follows:]

QUESTIONS SUBMITTED BY CONGRESSMAN LEATH

CORPS TEXAS PARK RECREATION

Question. This Committee restored funds in FY 90 to provide base operation of all Corps parks and prevent park closing. Is the amount provided for FY 91 recreation operation at any of your Texas projects less than provided in FY 90?

Answer. There are 15 Texas projects in the Southwestern Division scheduled to receive less funding in Fiscal Year 1991 than the amount provided in Fiscal Year 1990.

Question. Can you provide for the record the amount each project was reduced below the FY 90 level?

Answer. The following is a list of the 15 projects in Texas that were reduced below the Fiscal Year 1990 level and the amount of the reduction.

PROJECT NAME	REDUCTION IN RECREATION AREA OPERATING FUNDS, (FY 90 TO FY 91)
Bardwell Lake	45,000
Belton Lake	118,700
Benbrook Lake	125,400
Ferrells Bridge Dam, Lake O' the Pines	262,000
Grapevine Lake	38,600
Hords Creek Lake	68,100
Navarro Mills Lake	6,500
N. San Gabriel Dam & Lake Georgetown	44,400
Proctor Lake	190,900
Somerville Lake	131,500
Waco Lake	42,600
Wright Patman Dam & Lake	106,500
Sam Rayburn Dam & Reservoir	297,000
Town Bluff Dam, B. A. Steinhagen Lake	42,200
Whitney Lake	115,800
Total	$1,635,200

Although 15 projects are scheduled at a lesser amount in Fiscal Year 1991 than was appropriated in Fiscal Year 1990, there are 13 projects in Texas that are scheduled to receive a greater amount. Because of the complexity of the Operation and Maintenance program, it is not uncommon to see this type of variance throughout Corps projects.

CORPS TEXAS PARK RECREATION

Question. Will you continue to use returned recreation fee funds for enhancement and improvement to fee areas or are you now proposing to use these funds for base operation costs?

Answer. At most locations, it has become necessary to supplement the normal operation and maintenance amounts with funds received from the available Special Recreation User Fees, in lieu of using these funds for enhancements and improvements.

Mr. BEVILL. Are there any other questions?
The committee now stands adjourned until February 20.

TUESDAY, FEBRUARY 20, 1990.

SOUTH PACIFIC DIVISION

WITNESSES

BRIG. GEN. JOHN F. SOBKE, DIVISION COMMANDER
EDWARD J. O'NEILL, JR., CHIEF, PROGRAMS MANAGEMENT OFFICE
LAWRENCE L. FELBER, ASSISTANT CHIEF, PROGRAMS MANAGEMENT OFFICE

OPENING REMARKS

Mr. BEVILL. The committee will come to order.

General Sobke, we are delighted to have you with us, and you may proceed as you wish.

INTRODUCTION

General SOBKE. Thank you, sir.

Mr. Chairman, distinguished members of the committee, I am pleased to have this opportunity to report to you on the status of civil works activities of the South Pacific Division as we begin the decade which will lead us to the 21st Century.

Assisting me today are Mr. Ed O'Neill, Chief of Programs Management, and his assistant, Mr. Larry Felber. Also with me today are Dave Fulton, Chief of Construction Operations; Mr. Jay Soper, Chief of Engineering, and Mr. Frank Dunn, our Chief Planner.

Mr. BEVILL. Glad to have you with us.

General SOBKE. And we have others in the room as well, sir, who have assisted in this.

LOMA PRIETA EARTHQUAKE

Nationwide attention was focused on the San Francisco Bay Area at 5:04 p.m. on the 17th of October, 1989, just prior to the scheduled start of the third game of the Bay Bridge World Series. A major earthquake, estimated at 7.1 on the Richter scale, struck Northern California. Fifteen seconds of violent movement caused 62 deaths, over 3,700 injuries, and damages of about $6 billion. Over 22,000 residences and 1,500 commercial establishments were damaged or destroyed, and more than 12,000 citizens were displaced.

The Corps of Engineers immediately mobilized and began conducting preliminary damage assessments on the 18th. Following closely after Hurricane Hugo, the Federal Emergency Management Agency found itself heavily committed and requested our assistance in earthquake recovery to conduct damage surveys of public facilities and habitability inspections of private residences. This latter mission was a major effort never before performed by the

Corps, and nationwide resources were brought into play. Literally overnight, 300 volunteer Corps employees, all highly trained professionals, were en route to the Bay Area. We were tasked for this mission by FEMA on Friday, 20 October, and our first teams were briefed, equipped and deployed to the field by Monday the 23rd. Our people responded magnificently and demonstrated the highest levels of sensitivity and compassion in the performance of their duties.

In addition to assisting FEMA in recovery efforts, we had direct responsibilities of our own. Federal levees along the San Lorenzo and Pajaro Rivers were severely damaged, and we were approaching the period when floods could be expected. Immediate repairs were necessary. Contracts were awarded on 28 October and construction completed by the 15th of December. We also responded to a California Department of Transportation requirement for a deeper channel at the Berkeley Marina to permit ferry service from that East Bay location to San Francisco, since major transportation routes, including the heavily traveled Bay Bridge, were disrupted by earthquake-related damages. We awarded a dredging contract on 21 October which was completed by 18 November, deepening the channel from five to nine feet.

Ultimately, over 1,000 Corps employees were involved in earthquake recovery operations. Our people came from all across the country to help us when we needed them. I am very proud to be a part of an organization that responds and performs in that manner.

As damaging as it was, the Loma Prieta event was not the largest earthquake that can be anticipated. Seismic experts are concerned that much larger events may occur in the foreseeable future. At this time, I can report that despite the damage that actually occurred, the basic infrastructure of Northern California remains intact, and life goes on.

FY 1991 BUDGET

The President's Budget includes $264 million for civil works activities for the South Pacific Division, about a 35 percent increase over the funds provided for the current year.

GENERAL INVESTIGATIONS

For planning and design activities under the General Investigations program, the budget includes $15.4 million, compared to $15.2 million this year. The requested amount will permit continued work on 23 studies and design of 17 projects.

STUDY PROGRAM

For our study program, the budget includes adequate funds to complete nine reconnaissance studies which were partially funded for initiation this year. During the budget year, we will complete seven feasibility studies, including the very important investigation of modifications to the Los Angeles-Long Beach Harbors complex. We will also continue ongoing studies at Humboldt Harbor in Northern California and at the Monterey Harbor along the central coast.

DESIGN PROGRAM

Our largest design requests, totalling $2 million each, are for design of projects addressing serious flood problems in Los Angeles County and the Sacramento area.

LOS ANGELES COUNTY DRAINAGE AREA

The Los Angeles County Drainage Area project will increase the level of flood protection for communities along the lower Los Angeles River from about 50-year to 130-year protection. The proposed plan provides for construction of parapet walls from two to eight feet high along the existing Rio Hondo and lower Los Angeles River levees, and modification of 26 existing bridges. The project is estimated to cost $300 million with average annual benefits of $57 million and a benefit-to-cost ratio of 2.9 to 1.

AMERICAN AND SACRAMENTO RIVERS

The American and Sacramento Rivers project will increase the level of flood protection for the Sacramento Metropolitan Area from about 63 year to 200 year protection. While a final plan has not yet been adopted, the most likely plan consists of upstream storage on the American River near Auburn along with levee and channel improvements in the Sacramento, West Sacramento and Natomas areas. The project will cost about $500 million with a benefit to cost ratio of about 2.5 to 1.

Design studies will be continued or completed for Morro Bay Harbor in Central California, Oceanside Harbor in Southern California, Napa River in the Bay Area, and Truckee Meadows in the Reno-Sparks Metropolitan Area in Nevada.

CONSRUCTION

For our construction program, the President's Budget includes $185.8 million compared to $120.1 million for the current year. This amount is adequate to maintain schedules for the 22 projects included in the budget, and will permit completion of scheduled work on four projects.

SANTA ANA RIVER MAINSTEM

Our largest single request is $65 million for the second year of construction of the Santa Ana River Mainstem project. We executed a Local Cooperation Agreement with project sponsors on 14 December 1989, and actual construction is scheduled for initiation this spring. All scheduled work will be completed by September 2000.

PHOENIX, ARIZONA AND VICINITY

We will award the final major construction contract for the Phoenix, Arizona project Reach 4 of the Arizona Canal Diversion Channel, this September. The $34.3 million included in the President's Budget will permit continued progress for project completion by September 1992.

SACRAMENTO URBAN AREA LEVEE RECONSTRUCTION

We will initiate reconstruction of the levee system protecting the Sacramento area this summer. The budget includes $13.5 million for continuation of this critically important project in 1991. Last fall, we awarded a contract to test, on site, the advantages and disadvantages of different construction techniques and materials. The test results, which will be available shortly, should help us complete design of the work for the levees in densely developed areas of Sacramento and obtain the best prices for construction.

LITTLE DELL LAKE, UTAH

We will complete construction of the Little Dell Dam in the Salt Lake City area with the $9.1 million included in the budget for this project. Work on the project is well underway, and we have made considerable progress since last year.

OPERATIONS AND MAINTENANCE

The budget includes $63.2 million for operation and maintenance, compared to $60.7 million provided for 1990. This amount will permit continued maintenance of 26 navigation projects, and the operation and maintenance of 21 flood control and multiple purpose projects. Existing Federally maintained recreation areas will be operated as in the past.

LONG TERM MANAGEMENT STRATEGY

One of the most complex problems we face is achieving a regional consensus on how to dispose of material dredged to deepen or maintain San Francisco Bay Area navigation channels. Over the past year, I have worked with Federal and State agencies, as well as with local groups, ranging from navigation proponents to environmentally oriented interests. I firmly believe that a rational long term management strategy for dredge material disposal can be developed for the Bay Area. Solutions to this problem that provide for environmentally sustainable development are critical to the long term economic health of Northern California and to the maintenance of a fully effective West Coast navigation system. At this point, I can report to you that we will develop the best set of options that we can identify and we will work diligently to achieve a regional consensus.

SPD AREA OVERVIEW

Mr. Chairman, in my previous appearance before this committee, I spoke of the tremendous population growth in my Division. That growth continues to outstrip earlier projections. For example, California experienced a 2.6 percent growth rate in 1989, the fastest rate of growth in the State in 25 years. The growth since the last census is 23 percent, and the population of the State now exceeds 29 million. The same trend is even more pronounced for other areas of the Division such as Nevada, which has seen a 49 percent population increase since 1980, and Arizona, which has experienced a 31 percent increase. This continued and rapid growth rate has put overwhelming pressures on the economic and public works in-

frastructure of this region—perpetuating, or intensifying flood control and navigation needs.

Economic development in the Orient continues to have a major influence on the region and its centers of commerce. Over the past three decades, trade with Asia has expanded—from only half the value of U.S./European trade in 1960, to about 50 percent over European trade today. This trend is expected to accelerate in the 1990's. Ports within the Division must be modernized to stay abreast of this dynamic growth in trade with the Far East.

REGIONAL CHARACTERISTICS

Despite earthquakes, floods, droughts, and other potential calamities our region has much to offer. Our climate is attractive, characterized by wet winters and dry summers, and the natural beauty of our part of this great Nation is unsurpassed. From the rugged Rocky Mountains along the Continental Divide, through the great river valleys carved from the earth by the force of moving water, across our arid deserts with unique displays of nature's wonders, to the scenic shorelines of California's coast, our people are surrounded by a delightful, but fragile environment. Located as we are along the Pacific rim and adjacent to our southern neighbors, our people reflect a diverse cultural melting pot—building in the West traditions that differ from the Nation's earlier experiences.

SOUTH PACIFIC DIVISION VISION

We in the South Pacific Division have created a vision for ourselves. Part of our vision is to build on the legacy of those who have gone before us and to continue—as did they—to serve as integrators between those encouraging development of our resources and those who champion their preservation and enhancement.

MAJOR GENERAL JOHN A.B. DILLARD, JR.

We paused recently to recognize one of my predecessors, Major General John A. B. Dillard, Jr, who served as SPD Commander from 1967 to 1968 by dedicating our Gallery of Distinguished Service in his honor. We were fortunate to have two of General Dillard's children, Jack Jr., and Niccole Clapp, join Lieutenant General Henry J. Hatch, our Chief of Engineers at a ceremony in the South Pacific Division's San Francisco headquarters. General Dillard lost his life to enemy fire in Vietnam in 1970. Excellence was his hallmark, and his legacy will help guide us as we seek solutions to the water resources problems of the 21st Century.

CONCLUSION

Mr. Chairman, we are proud to represent our region before this committee. The Bay Area, despite its many challenges, is the home of champions. We hope to emulate these champions by accomplishing our mission as well as they accomplished theirs.

Mr. Chairman, that concludes my presentation. I stand ready to answer any questions you may have.

EARTHQUAKE RESPONSE

Mr. BEVILL. Thank you, General, for your fine presentation. I want to commend you and your staff, in particular, for what you did in the San Francisco area with the earthquake damages. That was a tremendous job you did, and I can appreciate that. I was there just two or three days before the earthquake, attending the World Series, and so I can appreciate what you all really had to handle, and what you had to deal with. We will insert the justification material for the South Pacific Division in the record at this point, without objection.

[The information follows:]

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY SOUTH PACIFIC DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
General Investigations			
Surveys	7,469,000	5,329,000	- 2,140,000
Preconstruction Engineering and Design	7,738,000	10,025,000	+ 2,287,000
Construction, General			
Construction	120,065,000	185,800,000	+65,735,000
Operation and Maintenance, General			
Project Operation and Maintenance	60,700,000	63,220,000	+ 2,520,000
TOTAL	195,972,000	264,374,000	+68,402,000

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991 South Pacific Division

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
1. SURVEYS - NEW: None					
2. SURVEYS - CONTINUING:					
a. Navigation Studies: The amount of $827,000 is requested to continue three studies and complete one study in Fiscal Year 1991.					
California					
Humboldt Harbor and Bay (Deepening)	875,000	350,000	200,000	225,000	100,000

The study area is located in Humboldt Bay, Humboldt County, California, about 280 miles north of San Francisco. Humboldt Bay is the only commercial deep-draft port between Coos Bay, Oregon and San Francisco. The area has a history of high unemployment, currently at 6.2 percent and continues to be economically depressed. The shipping docks within the harbor are a major factor in support of the main industry (forest products). In 1988, 1,701,000 short tons of cargo passed through the harbor. Vessels presently using the harbor, primarily in support of the log and pulp industry in the United States and overseas, experience major problems in maneuvering in the existing channels because of sharp bends, currents and waves. Increased vessel size also results in navigation difficulties, with present channel widths, depths and alignments. Existing channels limit vessel sizes to less than 700 feet in length. The study is evaluating straightening and modifying existing channels and increasing channel widths and depths in order to relieve these existing and potential problems. Existing channel depths include: 40-foot bar and entrance channel; 35-foot North Bay Channel; and 26-foot South Bay Channel.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,050,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,400,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	525,000
Feasibility Phase (Non-Federal)	525,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

a. Navigation Studies: California, Humboldt Harbor and Bay (Deepening) (Cont'd)

The reconnaissance phase is scheduled for completion in March 1990. The feasibility study is scheduled for completion in September 1992.

Los Angeles-Long Beach Harbors	9,070,000	7,970,000	850,000	250,000	0

Los Angeles and Long Beach Harbors are located about 25 miles south of the business center of the city of Los Angeles, California, and adjacent to the city of Long Beach. Population of the tributary area has increased from 10.7 million in 1960 to over 25 million in 1988, and is expected to increase to 34.5 million by the year 2000. Commerce has increased from about 32 million tons in 1960 to over 90 million tons in 1988. Commerce in the year 2020 is expected to be about 205 million tons. The Los Angeles-Long Beach outer harbors have need for greater depths to support present and future fleets of tanker and bulk vessels. These harbors serve the entire Pacific Southwest, and goods pass through the ports to or from all 50 states. There is a potential deficiency in onshore facilities, depths of channels, and available land resources to accommodate cargo projections to the year 2020. To address this need, the ports have developed a comprehensive plan (2020 Master Plan) for landfill and channel configurations and onshore facilities projected for phased construction during this time period. The potential Federal project would include deepening the existing Federal channels and dredging new channels. The Water Resources Development Act of 1986 authorized Federal participation, pending a favorable Chief of Engineer's report, in dredging navigation channels to depths of 70 and 76 feet for Los Angeles and Long Beach Harbors, respectively, and in the creation of 800 acres of landfill to support the port complex expansion needs. The Water Resources Development Act of 1988 further revised project authorization by providing that, if non-Federal interests perform any work which is later considered part of the recommended and approved project, they may receive credit for such work in an amount equal to the Federal share of the cost of such work.

Fiscal Year 1990 funds are being used to incorporate changes necessitated by port land use plans, additional environmental studies, economic analysis to adequately address fleet and cargo forecasts, detailed estimates, and increased study management for public involvement.

Fiscal Year 1991 funds will be used to complete a feasibility report and environmental impact statement. The study report of the Division Engineer is scheduled for completion in February 1991.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: California (Cont'd)					
Monterey Harbor	775,000	0	193,000	210,000	372,000

Monterey Harbor is located in Monterey County at the south end of Monterey Bay, about 100 miles south of San Francisco, California. The existing Federal project consists of a west breakwater 1,700 feet in length, completed in 1934. In 1960, the construction of two rubble-mound breakwaters was authorized but these improvements were not constructed because of lack of local support. This study will determine if improvements within the scope of the authorized plan are still viable and in the Federal interest. It is the only improved commercial fishing harbor between Moss Landing, 13 miles to the north, and Morro Bay, 100 miles to the south. Commercial fishing and related industry continue to be an important part of the area's economy. The protected anchorage afforded by the existing breakwater is inadequate for fishing and other vessels based at the harbor and provides little protection during northerly storms when the combined action of surge, wind, and high seas results in boats colliding and being driven ashore or against nearby wharves. Breakwater improvements would increase commercial navigation benefits by providing a fully protected harbor and permit additional development for wharfing facilities, adequate mooring areas for fishing craft and a harbor of refuge. The City of Monterey, the local sponsor, recently renewed its support for the project and expressed their intent to participate in 50-50 cost sharing of the feasibility phase of the study.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $930,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,240,000
Reconnaissance Phase (Federal)	310,000
Feasibility Phase (Federal)	465,000
Feasibility Phase (Non-Federal)	465,000

The reconnaissance phase is scheduled for completion in July 1991. The feasibility study is scheduled for completion in August 1994.

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation Studies: California (Cont'd)					
Santa Monica Breakwater	535,000	160,000	150,000	142,000	83,000

The study area is located seaward of the Santa Monica Pier approximately 15 miles west of Los Angeles, California. The existing Santa Monica breakwater is 2,000 feet long and lies 1,300 feet from the shoreline. The breakwater was built in 1934 by the City of Santa Monica, running approximately parallel to the shoreline, and was designed to protect the Santa Monica Pier and shoreline facilities as well as create a safe anchorage for boats. The original crest elevation of the breakwater was 10 feet, but the structure had deteriorated to 5 feet by 1972 and now averages minus 5 feet subsequent to the storms of 1983. Currently, portions of the breakwater are submerged during high tides and pose a navigation hazard to boaters in the area. The storms of 1982-1983 caused $4.5 million in damages to the pier and facilities. Reconstruction costs for strengthening damaged portions of the pier total $14 million (1989 prices). The purpose of the project would be to provide protection to the Santa Monica Pier and adjacent shoreline facilities. The probable solution would include restoration of all or a portion of the existing breakwater and possibly a 300-foot extension to the southern end to maximize shoreline protection and prevention of storm damage. The City of Santa Monica has indicated a willingness to participate in 50-50 cost sharing of feasibility phase studies.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility study. The estimated cost of the feasibility phase is $750,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$910,000
Reconnaissance Phase (Federal)	160,000
Feasibility Phase (Federal)	375,000
Feasibility Phase (Non-Federal)	375,000

The reconnaissance phase is scheduled for completion in April 1990. The feasibility study is scheduled for completion in May 1992.

TOTAL NAVIGATION STUDIES	11,255,000	8,480,000	1,393,000	827,000	555,000

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: The amount of $4,044,000 is requested to continue eleven studies and complete six studies in Fiscal Year 1991.

Arizona					
Gila River and Tributaries, Lower Santa Cruz River	1,254,000	600,000 1/	381,000	200,000	73,000

1/ Includes costs of $424,000 for prior study.

The study area is located in the lower reach of the Santa Cruz River in Pinal County, about 50 miles south of Phoenix, Arizona, and lies between the town of Red Rock and the confluence of the Gila River. The most recent flooding occurred in 1983 causing extensive damage along the Santa Cruz River estimated in excess of $40 million ($42 million at 1989 prices). Extensive property damage, livestock losses, and flooding occurred in the communities of Eloy, Evergreen Air Park, Casa Grande, Maricopa and Standfield. Total agricultural losses were experienced on the Indian Reservations of the Maricopa and the Tohono O'odham tribes during the 1983 event. Widespread hardship and suffering were documented. Flooding jeopardized operational aircraft and building facilities at the Evergreen Air Park in Marana, which is a Forest Service, Department of State, U.S. Customs Service, and Arizona Air National Guard operational area facility. Two lives were lost in the Marana area during rescue attempts to save stranded personnel. Because of geographical conditions of the terrain, an area larger than the state of Rhode Island was flooded along the course of the Santa Cruz River. Major interstate highways were closed due to bridge washouts, and all transcontinental railroad traffic in this area ceased for several weeks following the floods. This study was initially funded in Fiscal Year 1976 as an interim of the Gila River and Tributaries, Arizona and New Mexico study. A negative feasibility report was completed in September 1983. As a result of the extensive flooding in October 1983 a reevaluation study was initiated and completed which concluded the area's flood problems were more severe than previously estimated. The resumption of this study will address flood control measures, specifically a channel diversion/levee system designed to convey a 100-year flow.

Fiscal Year 1990 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,600,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Arizona, Gila River and Tributaries, Lower Santa Cruz River (Cont'd)

Total Estimated Study Cost	$2,054,000
Reconnaissance Phase (Federal)	454,000
Feasibility Phase (Federal)	800,000
Feasibility Phase (Non-Federal)	800,000

The feasibility study is scheduled for completion in December 1991.

Gila River Indian Community	500,000	0	145,000	200,000	155,000

The Gila River Indian Community is Arizona's seventh largest Indian Reservation, comprised of 372,000 acres (581 square miles) of low desert, and is located just south of the city of Phoenix, Arizona. The Gila, Santa Cruz, and other rivers flow through the reservation. Rapid urbanization and development in adjacent communities have increased flooding on the reservation. Flooding in 1983 resulted in two drownings and $6 million flood damage to homes, a major roadway, bridges, and utilities. Damages sustained from the flood would amount to $7.3 million at current prices. The 1983 flood resulted in a Presidential disaster declaration for the reservation. Excessive erosion of agricultural and range lands and deposition of 3 million cubic yards of silt accompanied this flood. The construction of railroads and highways has changed natural runoff patterns on the reservation. Groundwater overdrafting from off-reservation locations has lowered the water table on the reservation dramatically. The study is evaluating flooding and related water resources problems, and will determine whether there is a Federal interest in potential solutions to these problems.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $600,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$800,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	300,000
Feasibility Phase (Non-Federal)	300,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Arizona, Gila River Indian Community (Cont'd)

The reconnaissance phase is scheduled for completion in July 1991. The feasibility study is scheduled for completion in August 1993.

Tucson Drainage Area	1,250,000	0	488,000	250,000	512,000

The study will investigate flood problems on streams that flow within the city of Tucson, the second largest city in Arizona, located in eastern Pima County. Increasing urbanization is rapidly changing the characteristics of runoff conditions and is leaving the existing systems for this region inadequate. Floods on many of the mountain streams flowing into the Santa Cruz River have caused serious damage annually to urban properties, highways, bridges, erosion, and deposition of debris. In May 1985, the Corps of Engineers completed a Tucson Urban Study which focused on flood problems in the greater Tucson area, but not on the city itself. The report recommended that no further studies be undertaken as they were not warranted at that time. A major flood in October 1983 caused $50 million in flood damages, $55 million at current prices. Extensive damages were recorded throughout the urban and agricultural areas. Critical data from the devastating flood of October 1983 was not included in the Corps' study. The Federal Emergency Management Agency reevaluated the flooding conditions and indicated that because of changed conditions in the study area, the floodplains on the major drainage systems in the city have increased significantly in size. The 1988 Flood Insurance Study maps identify significant flooding problems in four major areas: Mainstem and West Branch-Santa Cruz River, Rodeo Wash, Arroyo Chico Wash, and Airport Wash. More than 1,000 additional acres of urban area along more than 10 miles of these major washes lie in the 100-year floodplain today. An urgent need exists to develop a comprehensive water resource plan to assure future flood damage prevention. This study will address flood control, associated water supply, and other water resource problems.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: Arizona, Tucson Drainage Area (Cont'd)					

The reconnaissance phase is scheduled for completion in July 1991. The feasibility study is scheduled for completion in August 1994.

California					
Northern California Streams, Yolo Bypass	1,250,000	0	150,000	400,000	700,000

The study area is located within the limits of the Sacramento River Flood Control System in Yolo and Solano Counties, California. Specifically, the study area includes the west side of the Yolo Bypass, from Fremont Weir in the north to the lower Putah Creek area in the south, and tributary streams of Cache Creek, Putah Creek, and Willow Slough. Currently, the area is predominantly agricultural, however, existing development potentially subject to flood damage includes a waste treatment plant for the cities of Woodland and Davis adjacent to the Yolo Bypass westside levee, and the Yolo County landfill. Flooding of the landfill would create severe environmental problems. Outlying residential areas of both Davis and Woodland would be endangered, as well as future development planned for the area with the expansion of these cities. As a result of the winter storms of 1983-84, sustained high river flows saturated the Yolo Bypass levees south of Interstate Highway 5. Wavewash erosion of the levees required extensive emergency repair work by the Corps. During the storms of February 1986 freeboard was less than three feet in some areas of the Bypass Levee System. Emergency work was again required due to saturation and wavewash erosion on the Bypass southwest of Elkhorn Park and at the confluence of the Bypass and Willow Slough. The two events required nearly $1 million for emergency repairs and have raised concern that the levees on the westside of the Yolo Bypass and its adjacent streams are inadequate. The reconnaissance study will identify flooding problems specific to the area, determine possible solutions, and evaluate the likelihood of providing an increased level of flood protection.

Fiscal Year 1990 funds will be used to initiate the reconnaissance phase of the study. Funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility study is $1,500,000, to be cost shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, Northern California Streams, Yolo Bypass (Cont'd)

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

The reconnaissance phase is scheduled for completion in June 1991. The feasibility study is scheduled for completion in September 1994.

Northern California Streams, Yuba River Basin	1,250,000	500,000	50,000	375,000	325,000

The Yuba River Basin lies between the Feather and American River Basins in Northern California. The study area is located primarily in Sutter and Yuba Counties approximately 50 miles north of Sacramento. The principal urban centers within the study area include Marysville and Yuba City. The Marysville and Yuba City area has experienced six major floods in the past 33 years which include the floods of November 1950, December 1955 and December 1964 - January 1965 which were the most widespread and destructive. Record floodflows occurred with the 1955 flood, and resulted in the loss of 37 lives when a levee on the Feather River south of Yuba City failed. Modifications to flood protection facilities in the intervening 10 years, including partial completion of the State's Oroville Dam project, helped to prevent damage during the 1964-65 flood that may well have exceeded that caused by the 1955 flood event. Despite existing flood protection to the area, it is still vulnerable to catastrophic flooding as demonstrated by the recent flood in February 1986. During the flood, the south levee on the Yuba River failed inundating the towns of Linda and Olivehurst to about 10 feet in depth. Over 20,000 people were evacuated and damages were estimated at $95 million.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,500,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,000,000
Reconnaissance Phase (Federal)	500,000
Feasibility Phase (Federal)	750,000
Feasibility Phase (Non-Federal)	750,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, Northern California Streams, Yuba River Basin (Cont'd)

The reconnaissance phase is scheduled for completion in August 1990. The feasibility study is scheduled for completion in August 1993.

Sacramento-San Joaquin Delta	3,665,000	2,847,000	381,000	350,000	87,000

The study area is located in Sacramento, San Joaquin, and Contra Costa Counties, California and extends from Walnut Grove south to Tracy and from the city of Stockton west to Suisun Bay. This area consists of about 700,000 acres of land segregated into some 100 tracts and islands, bounded by interconnecting waterways and surrounded by 1,100 miles of levees which normally prevent the lands from being inundated by high tides or high river stages. However, flood protection is inadequate for the islands and tracts within the study area. Over 140 levee failures have occurred in the Delta since 1900. About 30 of these failures have occurred since 1980. Lands within these levees are among the most productive agricultural lands in the State, and failures due to levee instability are becoming more prevalent. The major reasons for this instability are the subsidence of island interiors and poor foundation conditions of existing levees. Also as a result of levee failures water quality degradation results from saltwater intrusion. Damages from levee failures and costs associated with maintenance work are increasing. The most recent levee failures in the study area were in February 1986; damages estimated at $17 million were reported on McCormack-Williamson Tract and Dead Horse, New Hope and Tyler Islands. The purpose of the study is to determine viable improvements for flood control, prevention of salinity intrusion caused by levee failures, recreation, and fish and wildlife. The most likely plan provides for additional flood protection to 19 islands or tracts. A joint coordinated technical study effort was initiated by the Bureau of Reclamation, California State Department of Water Resources, and the Corps in 1985. It is expected that any combined Federal and State comprehensive plan for the overall Delta will include water management, flood control, recreation, and fish and wildlife enhancement as project purposes. A Letter of Understanding between the three agencies for coordinating technical studies on the Delta was implemented in January 1986. The State of California, the local sponsor, has indicated a willingness to cost share the balance of the feasibility study beyond $2,915,000 on a 50-50 basis.

Fiscal Year 1990 funds are being used to continue technical studies and develop project alternatives for a comprehensive Delta plan. The funds requested for Fiscal Year 1991 will be used to complete technical studies, formulate the selected plan and initiate report preparation. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, Sacramento-San Joaquin Delta (Cont'd)

Total Estimated Study Cost	$4,415,000
Feasibility Phase (Federal)	3,665,000
Feasibility Phase (Non-Federal)	750,000

The feasibility study is scheduled for completion in June 1992.

San Joaquin River Basin, Calaveras River	1,125,000	450,000	50,000	325,000	300,000

The study area is located along the Calaveras River, which drains approximately 470 square miles, in the vicinity of Stockton, California. The 1988 population of Stockton was approximately 185,000. The study area comprises the watershed of the Calaveras River below New Hogan Lake, including its two distributary channels, its floodplain, and its service area. During the 1983 flood, about $1 million in damages occurred along the Calaveras River below New Hogan Lake. In February 1986, over $5 million in flood damages occurred in this same area caused primarily by inflow to the Calaveras River from tributaries below the dam. Damages occurred to orchard and vineyard lands, county roads, and drainage structures such as culverts, and county bridges. The Stockton East Water District has expressed the need for additional flood control on the Calaveras River. Local interests believe that had the intensity of the February 1986 storm occurred in the study area as it did in other areas of northern California, New Hogan Lake probably would not have provided adequate protection to the downstream areas. The capacity of the flood control channels would have been greatly exceeded, and flooding would have occurred to areas east of Stockton and threatened highly developed areas in the main part of Stockton itself. This study is examining the feasibility of flood control measures below New Hogan Lake for flood control.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility phase of the study. The estimated cost of the feasibility phase is $1,350,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,800,000
Reconnaissance Phase (Federal)	450,000
Feasibility Phase (Federal)	675,000
Feasibility Phase (Non-Federal)	675,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, San Joaquin River Basin, Calaveras River (Cont'd)

The reconnaissance phase is scheduled for completion in July 1990. The feasibility study is scheduled for completion in June 1993.

San Joaquin River Basin, Kaweah River	1,125,000	935,000	120,000	70,000	0

The Kaweah River Basin is within the Tulare Lake Basin and located in the southeastern portion of the San Joaquin Valley between the cities of Fresno and Bakersfield, California. The Kaweah River begins in the Sierra Nevada mountains and drains about 560 square miles into Lake Kaweah. From Lake Kaweah it passes near the city of Visalia, with a population of about 65,200, as it flows west into the Tulare Lakebed. Terminus Dam was completed in 1962 to provide flood control and irrigation water supply. However, significant flood damages to communities and highly developed agricultural lands along the Kaweah River have continued to occur. Flood releases beyond Terminus Dam capacity have contributed to flood damages to agricultural lands in the Tulare Lakebed. The December 1966 rainflood exceeded the design capacity of Terminus Dam and floodflows passing downstream of the dam resulted in about $1 million in damages below the dam, under conditions and prices at that time. If such an event were to occur today with current prices, damages would amount to about $3.8 million. These downstream flows peaked at about 5,700 cubic feet per second and inundated about 8,000 acres. The most recent flooding in 1983 caused extensive and widespread damages to properties in the Tulare Lakebed area where losses attributed to the Kaweah River were estimated at $17.6 million. Because of these significant floods, local interests have requested that the Corps of Engineers study the potential of enlarging Terminus Dam to provide greater flood protection and conservation storage. In addition, this study will address flood control and conservation storage on Dry Creek, a tributary of the Kaweah River, downstream from Terminus Dam.

Fiscal Year 1990 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $1,600,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. One half of the non-Federal share will be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,925,000
Reconnaissance Phase (Federal)	325,000
Feasibility Phase (Federal)	800,000
Feasibility Phase (Non-Federal)	800,000

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, San Joaquin River Basin, Kaweah River (Cont'd)

The reconnaissance phase was completed in January 1988. The feasibility study is scheduled for completion in December 1991.

San Joaquin River Basin, Mokelumne River and Tributaries	1,225,000	0	428,000	300,000	497,000

The study area is located in Central California and is the Cosumnes River, Mokelumne River, and Dry Creek Watersheds above the Sacramento-San Joaquin Delta in Sacramento and San Joaquin Counties, California. Recent storms and resulting high flows on the Cosumnes and Mokelumne Rivers have illustrated the need for flood prevention measures in these watersheds. In February 1986, high flows caused flooding to the town of Thornton, due to an overtopped levee on the Mokelumne River. Over 59,000 acres were flooded with damages of approximately $20 million. Extensive floodfighting activities around the towns of Walnut Grove and Isleton prevented further flood damages. These floodfight costs were approximately $1.7 million. This study is investigating the feasibility of providing flood prevention measures in these two watersheds upstream of the legal limits of the Delta. Measures being investigated include provision of flood control storage on the Cosumnes River and Dry Creek, and operational modification of Camanche Reservoir and/or Pardee Reservoir.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary cost of the feasibility phase is $1,470,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,960,000
Reconnaissance Phase (Federal)	490,000
Feasibility Phase (Federal)	735,000
Feasibility Phase (Non-Federal)	735,000

The reconnaissance phase is scheduled for completion in March 1991. The feasibility study is scheduled for completion in March 1994.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: California (Cont'd)					
San Joaquin River Basin, Tule River	750,000	600,000	86,000	64,000	0

The study area is located within the 12,500 square mile Tulare Lake Basin and located in the southeastern portion of the San Joaquin Valley about 60 miles north of the city of Bakersfield, California. The Tule River drains about 390 square miles into Success Lake and flows from the lake through the city of Porterville (population 25,050) located 5 miles downstream and continues another 25 miles westerly through rich agricultural areas, culminating in Tulare Lakebed. Success Lake currently provides 55-year flood control protection to the city of Porterville and irrigation water supply. In December 1966, floodflows caused Success Lake to completely fill and excess flood flows passed over the spillway inundating about 26,300 acres downstream. Flood damages of about $1.5 million resulted, at prices and conditions existing at that time. Under current price levels, flood damages of about $5.7 million would have occurred in the area. In 1983 the lake again filled and excess floodflows caused damages of about $360,000 along Tule River. Flood damages further downstream in the Tulare Lakebed were extremely severe and widespread and damages attributed to the Tule River were nearly $7.5 million. During this flood local interests pumped flood releases into the Friant-Kern Canal to disperse the water through the Kern River-California Aqueduct Intertie. Had this action not occurred, Tulare Lakebed damages would have been greater. In March 1983, the Tulare County Board of Supervisors requested the Corps to study the potential of increasing flood storage of Success Lake for a higher degree of flood protection and possible increased conservation storage.

Fiscal Year 1990 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The estimated cost of the feasibility phase is $920,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Twenty-five percent of the non- Federal share will be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,210,000
Reconnaissance Phase (Federal)	290,000
Feasibility Phase (Federal)	460,000
Feasibility Phase (Non-Federal)	460,000

The reconnaissance phase was completed in May 1988. The feasibility study is scheduled for completion in January 1992.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Damage Prevention Studies: California (Cont'd)					
San Lorenzo River	1,152,000	768,000	286,000	98,000	0

The study area is located within the city limits of Santa Cruz, California, about 70 miles south of San Francisco and includes the lower 2.5 miles of the San Lorenzo River which terminates at the Pacific Ocean. The river flows through a highly developed business, industrial, and residential area. Extensive flooding occurred in 1955 which inundated 410 acres and caused damages in excess of $7 million. As a result, a flood control project, including levee and channel improvements, was constructed and completed in 1959 by the Corps of Engineers. Excessive sediment deposition in the streambed has reduced the carrying capacity of the existing flood control project to about the 35-year event as compared to the design capacity which is equal to about a 150-year event. A sediment transport study of the river was completed in October 1986 and it was determined that it is not economically feasible to maintain the required channel bottom profile. It appears that raising the levees will lead to a less costly method of providing the design capacity rather than annual dredging as presently required.

Fiscal Year 1990 funds are being used to continue the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to complete the feasibility study. The estimated cost of the feasibility phase is $790,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,547,000
Reconnaissance Phase (Federal)	757,000
Feasibility Phase (Federal)	395,000
Feasibility Phase (Non-Federal)	395,000

The reconnaissance phase was completed in July 1989. The feasibility study is scheduled for completion in May 1991.

Santa Ana River and Orange County	9,560,000	9,035,000	255,000	270,000	0

The study area, one of the fastest growing regions in the Nation, is located in Orange, San Bernardino, and Riverside Counties, adjacent to metropolitan Los Angeles, California. Population in the basin has increased from 1.3 million in 1960 to over 4.2 million in 1989, and is expected to increase to 5.3 million by the year 2000. Rapid urbanization of many areas of the basin is increasing the number of people threatened by floods and, at the same time, is generating

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, Santa Ana River and Orange County (Cont'd)

larger runoff from developed areas. Flooding in January and February 1969 caused $88 million in damages ($325 million at 1989 prices), and flooding in February and March 1980 caused damages of $40 million ($61 million at 1989 prices). The need for flood control has increased rapidly with population growth in the last decade, and the associated need to develop water sources is critical since southern California is gradually losing a major portion of the Colorado River legal entitlement of 1.2 million acre-feet of water per year. This study addresses some of the most serious urban flooding problems in California, as well as the increasingly critical water supply problems in the developing Santa Ana River Basin. The study currently includes one interim study and a final report. The Coyote Creek interim study is considering plans of improvement on streams in heavily urbanized Orange County, including those streams which threaten the communities of Fullerton, Anaheim, Huntington Beach, Fountain Valley, and portions of Costa Mesa and Newport Beach. Streams under study are Huntington-Talbert Channel, Greenville-Banning Channel, East Garden Grove-Wintersburg Channel and Coyote Creek and tributaries. In March 1983, a major storm caused extensive flooding within the city of Huntington Beach and its surrounding communities. As a result, about 5,000 people were evacuated from their homes, and approximately $15 million in property damage occurred. The final report will consider levees and channels on all other streams in Orange, San Bernardino, and Riverside Counties, within the basin, not covered in the interim studies. Problems in the cities of Chino, Fontana, Rialto, San Bernardino, Highland, San Juan Capistrano, and San Clemente will be addressed.

Fiscal Year 1990 funds are being used to complete the Coyote Creek interim study and complete hydrology and hydraulic studies on the following Orange County streams: San Diego Creek and Tributaries, San Juan Creek and Tributaries, Aliso, La Mirada, Moody Creeks, and Santa Ana Delhi Channel. The funds requested for Fiscal Year 1991 will be used to complete all remaining studies and submit the final feasibility report.

The study report of the Division Engineer is scheduled for completion in September 1991. The Coyote Creek interim report is scheduled for completion in August 1990.

Upper Guadalupe River	1,178,000	458,000	200,000	300,000	220,000

The study area is located in the city of San Jose, Santa Clara County, California, and covers a distance of about 5.5 miles upstream of the Interstate Highway 280 crossing. The Guadalupe River is the major drainage system for the city of San Jose. The Upper Guadalupe Basin has a demonstrated potential for serious flood damage. It is estimated that the 100-year flood event would flood over 2,200 acres of highly urbanized area. Approximately 8,300 structures would be affected, including six schools, causing an estimated $112 million in damages. Continued development in this area

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, Upper Guadalupe River (Cont'd)

including proposed local projects, such as the southerly extension of State Highway Route 87 and development of the Guadalupe River Park could increase the potential for additional flood damage. The feasibility study will evaluate a variety of non-structural and structural plans of improvement for flood protection in the Upper Guadalupe Basin.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility study. The estimated cost of the feasibility phase is $1,440,000 which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost-sharing is as follows:

Total Estimated Study Cost	$1,898,000
Reconnaissance Phase (Federal)	458,000
Feasibility Phase (Federal)	720,000
Feasibility Phase (Non-Federal)	720,000

The reconnaissance phase is scheduled for completion in March 1990. The feasibility study is scheduled for completion in September 1992.

Walnut Creek Basin	1,436,000	1,171,000	180,000	85,000	0

The study area is located in Contra Costa County, California, about 15 miles east of the city of Oakland, and comprises about 180 square miles including drainage of Mt. Diablo Creek. The population of the study area is about 375,000 which includes the cities of Walnut Creek, Pleasant Hill, and Concord, which serve the residential needs of the San Francisco Metropolitan area, as well as supporting local commercial and industrial developments. The Walnut Creek Project, which lies within the study area, was authorized by the Flood Control Act of 1960 and is currently under construction. This project extends from the city of Walnut Creek to Suisun Bay and includes some of the small streams tributary to Walnut Creek. As a result of continued rapid urbanization, much of the Walnut Creek Basin is experiencing flood and drainage problems outside of the Walnut Creek project area as existing tributary channels are inadequate to handle increased floodflows. Flooding in 1982 and 1983 caused about $18 million in damages to unprotected areas of the Walnut Creek Basin. Estimated average annual damages to these same areas are at least $10 million. New conceptual plans were evaluated in Fiscal Years 1986 and 1987 to determine if there is a viable flood control project. Preliminary results indicate there will likely be a feasible solution to the flood problems. The local sponsor is cost sharing the cost of the feasibility study over and above $1,051,000 on a 50-50 basis.

29 JAN 1990

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: California, Walnut Creek Basin (Cont'd)

Fiscal Year 1990 funds are being used to continue feasibility studies. The funds requested for Fiscal Year 1991 will be used to complete feasibility studies and prepare a feasibility report. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,821,000
Feasibility Phase (Federal)	1,436,000
Feasibility Phase (Non-Federal)	385,000

The feasibility study is scheduled for completion in January 1992.

Nevada

Las Vegas Wash and Tributaries, Duck Creek and Blue Diamond Wash	1,000,000	100,000	286,000	200,000	414,000

The study area is located south and west of the city of Las Vegas along Duck Creek and Blue Diamond Wash, in southern Nevada. Population growth in the Las Vegas Valley, from 94,000 in 1959 to approximately 697,000 in 1989, has increased the potential and severity of urban flood damages as development has taken place along Duck Creek and Blue Diamond Wash. The July 1975 flood caused $5 million in damages, $10.2 million at current prices, throughout the greater Las Vegas area. The severity of the July and August 1984 flooding and associated damages, estimated at $6.5 million, resulted in a Presidential disaster declaration for Clark County, including the Las Vegas Valley, in September 1984. Clark County also passed an emergency $15 million bond issue to deal with the flooding problem. In June 1985 the Clark County Regional Flood Control District was created by the Nevada State Legislature to provide an effective organization to address the flood problems in Clark County. The flood control district completed a Flood Control Master Plan in May 1986 which identifies a recommended plan for the Las Vegas Valley. The recommended plan for the Valley consists of diversion, detention, and channelization facilities. This study will evaluate plans of improvement which will reduce the threat of serious flooding to development along the Duck Creek and Blue Diamond Wash tributaries. The study will consider structural and nonstructural means to reduce flooding damages and provide erosion control, water supply, recreation, and wildlife enhancement. Study efforts are being concentrated on the flood threat along Duck Creek and Blue Diamond Wash, separate from the overall Las Vegas Wash and Tributaries study, because of the urgency for solutions to the flood threat along Duck Creek and Blue Diamond Wash and the financial

29 JAN 1990

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Nevada, Las Vegas Wash and Tributaries, Duck Creek and Blue Diamond Wash (Cont'd)

capability and desires of the local sponsor. The sponsor prefers that remaining flood problems in the Las Vegas Valley be addressed under the overall Las Vegas Wash and Tributaries study after completion of this study, when additional financial resources are available.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,200,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,600,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (Non-Federal)	600,000

The reconnaissance phase is scheduled for completion in May 1991. The feasibility study is scheduled for completion in July 1993.

Lower Truckee River	300,000	0	43,000	257,000	0

The Truckee River originates at Lake Tahoe in eastern California and flows in a northeasterly direction for about 100 miles to Pyramid Lake in northern Nevada. The study area is located along the lower 50 miles of the Truckee River from the Vista gage just downstream of the city of Sparks, Nevada to Pyramid Lake. The primary water resource problem is inadequate water supplies for competing uses. This problem causes habitat deterioration for two fish species, the endangered cui-ui and the threatened Lahontan cutthroat trout. There are also flood and erosion control problems. Flood related problems on the Lower Truckee River continue despite clearing, snagging and minor channel modifications completed between 1961 and 1964. Development has occurred in the 100-year floodplain with improvements now valued at over $15 million. Water supply among competing demands is complicated by litigation over water rights, including rights of the Pyramid Lake Tribe of the Pauite Indians, with the United States as a party. The purpose of the study is to determine if there is a Federal interest in providing modifications to the Lower Truckee River downstream of Vista, Nevada to resolve the flood control related issues and environmental problems, particularly with reference to

29 JAN 1990

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Nevada, Lower Truckee River (Cont'd)

improving fish and wildlife habitat for the endangered cui-ui and the threatened Lahontan cutthroat trout. Potential non-Federal sponsors are the State of Nevada, Pyramid Lake Tribe of the Pauite Indians, and Washoe and Storey Counties.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase of the study. The funds requested for Fiscal Year 1991 will be used to complete reconnaissance phase studies. Subsequent feasibility phase funding requirements are being evaluated during the reconnaissance phase. The reconnaissance report is scheduled for completion in September 1991.

Utah, Idaho and Wyoming

Weber River and Tributaries	1,000,000	0	350,000	300,000	350,000

The study area is located in north central Utah and consists of over 2,100 square miles that drain through the Weber River and its tributaries to the Great Salt Lake. The basin extends eastward from Great Salt Lake across the Wasatch Mountains, then southeastward across several high mountain valleys to the Uinta Mountains. The purpose of this investigation is to develop the best alternatives for providing flood control and alleviation of related problems in the basin. Flood problems include inundation, erosion and sedimentation damage to public facilities; commercial, industrial and residential development; utilities and agriculture; and damage to fish and wildlife habitat. In 1983, flood damages in the basin totaled nearly $10 million. The Utah Division of Water Resources has expressed support for initiating an investigation of local and regional flood control and other water resource problems. The Utah Division of Water Resources has indicated they understand the two phase planning process and are willing to participate in 50-50 cost sharing of feasibility phase studies. The most likely type of projects that may be developed by the study are local protection levees and channel improvements at the population centers.

Fiscal Year 1990 funds are being used to initiate the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary cost of the feasibility phase is $1,200,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Damage Prevention Studies: Utah, Idaho and Wyoming, Weber River and Tributaries (Cont'd)

Total Estimated Study Cost	$1,600,000
Reconnaissance Phase (Federal)	400,000
Feasibility Phase (Federal)	600,000
Feasibility Phase (Non-Federal)	600,000

The reconnaissance phase is scheduled for completion in March 1991. The feasibility study is scheduled for completion in March 1994.

TOTAL FLOOD DAMAGE PREVENTION STUDIES	29,020,000	17,464,000	3,879,000	4,044,000	3,633,000

c. Shoreline Protection Studies: The amount of $458,000 is requested to continue two studies in Fiscal Year 1991.

California					
San Francisco County, Ocean Beach	875,000	0	143,000	336,000	396,000

The study area is along Ocean Beach, located on the western boundary of the city and county of San Francisco, California, and acts as the buffer between the Great Highway and the Pacific Ocean. In the 1920's, the City of San Francisco planned to design and construct a reinforced concrete seawall along the entire 3.3 miles of the study area; however, economic conditions during the 1930's halted construction after only one mile of seawall was completed. In 1983, the City of San Francisco, the Environmental Protection Agency and the State of California completed a Westside Sewer Transport Project, a 2-1/2 mile long, 30-foot wide box culvert constructed under the Great Highway at a cost of $100 million. The 2.3 miles of bluffs and dunes along Ocean Beach, not protected by the seawall, have been subject to erosion for many years. Storm waves now pose a serious threat to the Great Highway itself, a portion of the Westside Sewer Transport and nearby residences. The City constructed a 2,600-foot long seawall within the study area where the protection provided by the bluffs has been critically weakened. However, due to local funding constraints, this construction effort is only a partial solution to the overall shoreline erosion problem. The study will address the development of long-term solutions for the protection of the valuable infrastructure along the entire study area. Possible solutions include structures such as seawalls, revetments, and detached breakwaters, or beach nourishment, or a combination of both.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

c. Shoreline Protection Studies: California, San Francisco County, Ocean Beach (Cont'd)

Fiscal Year 1990 funds will be used to initiate the reconnaissances phase at full Federal expense. Funds requested for Fiscal Year 1991 will be used to complete the reconnaissance phase and initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,050,000, which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,400,000
Reconnaissance Phase (Federal)	350,000
Feasibility Phase (Federal)	525,000
Feasibility Phase (Non-Federal)	525,000

The reconnaissance phase is scheduled for completion in August 1991. The feasibility study is scheduled for completion in September 1993.

Santa Barbara County	830,000 1/	470,000	150,000	122,000	88,000

1/ Includes costs of $91,000 for prior study.

The study area is located along the Pacific Coast in Santa Barbara County, California, from the upcoast limit of the city of Santa Barbara downcoast to Rincon Point, a distance of 18.5 miles. The incorporated cities within the study area are Santa Barbara and Carpinteria. An urgent need exists to provide shoreline protection in the study area. Continuous erosion has resulted in a loss of about six acres of beach. The causes of the changes in the shoreline and beach profile are being investigated. The January and February 1983 storms caused estimated damages of $2.7 million in Santa Barbara County and $800,000 to public and private property at Carpinteria Beach, which is currently about $3.4 million and $1,000,000 in 1989 prices, respectively. The county population in 1980 was 299,000 and is projected to reach 373,000 by the year 2000. The primary objectives of the study are to examine and determine littoral characteristics along the shore, determine sources of supply for maintenance of the beaches, causes and extent of shore erosion along the public beaches and the most economical measures for protection, and determine the Federal interest in any implementation.

Fiscal Year 1990 funds are being used to initiate the feasibility phase of the study. The funds requested for Fiscal Year 1991 will be used to continue the feasibility study. The estimated cost of the feasibility study is $720,000,

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

c. Shoreline Protection Studies: California, Santa Barbara County (Cont'd)

which is to be shared on a 50-50 basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,190,000
Reconnaissance Phase (Federal)	470,000
Feasibility Phase (Federal)	360,000
Feasibility Phase (Non-Federal)	360,000

The reconnaissance phase is scheduled for completion in April 1990. The feasibility study is scheduled for completion in May 1992.

TOTAL SHORELINE PROTECTION	1,705,000	470,000	293,000	458,000	484,000

d. Special Studies: None

e. Comprehensive Studies: None

f. Project Review Studies: None

TOTAL SURVEYS CONTINUING	41,980,000	26,414,000	5,565,000	5,329,000	4,672,000

3. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED), NEW: None

4. PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES (PED), CONTINUING

a. Navigation: The amount of $805,000 is requested to continue four PED activities in Fiscal Year 1991.

California

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
a. Navigation: California (Cont'd)					
Morro Bay Harbor	560,000	0	2,000	270,000	288,000

The project is located on the Pacific Coast in San Luis Obispo County, California, 13 miles northwest of the city of San Luis Obispo, about midway between Los Angeles and San Francisco. Morro Bay Harbor is used as a home port for about 181 commercial fishing vessels, 15 sport fishing boats, and 400 pleasure craft. In addition, approximately 200 commercial fishing vessels based at other ports land fish at Morro Bay Harbor during the fishing season. This fleet of boats provides major benefits to the local community which depends, to a large extent, on the fishing industry. Four canneries are located in Morro Bay employing approximately 350 people. Commercial fishing vessels landed 6,032 tons of fresh fish and shellfish at the harbor during 1987, valued at $6.6 million, and 5,200 tons during 1988, valued at $6.3 million. Severe storms in 1982 and 1983 damaged both the north and the south breakwaters. The total cost of repairs was approximately $1.5 million. Shoaling of the channel entrance also has created a hazard when two or more boats are trying to navigate the entrance at the same time. Feasibility studies are currently underway, and a feasibility report is scheduled for completion in June 1990. The project supported by local interests consists of extending, deepening and widening the entrance channel. This plan is estimated to cost $3,250,000 (October 1989 price level). The average annual benefits amount to $970,000 ($760,000 for navigation and $210,000 for reduced maintenance dredging). The benefit-cost ratio is 3.3 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor is required to provide lands, easements, rights-of-way, and dredged material disposal areas, if necessary in the construction of the project; modify or relocate buildings, utilities, roads, and other facilities, except railroad bridges, if necessary in the construction of the project; pay 10 percent of the costs allocated to shallow draft navigation during construction, and pay an additional 10 percent of the costs allocated to navigation within a period of 30 years following completion (if not offset by a credit allowed for lands, easements, rights-of-way, relocation, and dredged material disposal areas).

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design, which is scheduled for completion in August 1992.

Oceanside Harbor	750,000	65,000	428,000	175,000	82,000

Oceanside Harbor is located in San Diego County, California, about 30 miles north of the city of San Diego. The tributary population has increased from 319,000 in 1960 to 800,000 in 1980, a gain of over 150 percent, and is

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

a. Navigation: California, Oceanside Harbor (Cont'd)

expected to reach 1,360,000 by year 2000. Since 1963, 134 boating accidents have occurred, involving 47 injuries and eleven deaths. Winter storms in 1982 and 1983 caused $415,000 in damages to harbor facilities. In addition, the rapid rate of shoaling taking place in the entrance channel is impeding effective harbor operation. Dredging is needed at least annually to keep the harbor fully operative. The feasibility report was completed in July 1989. The recommended project, estimated to cost $5.5 million (October 1989 price level), includes an extension to the north breakwater, an addition of a spur to the south breakwater, and a modification to the dredged entrance channel. The average annual benefits amount to $873,000 ($559,000 for storm damage reduction, $140,000 for navigation, and $174,000 for recreation). The benefit-cost ratio is 1.5 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, and dredged material disposal areas, if necessary for construction and maintenance of the project; provide and maintain all project facilities other than those for general storm damage reduction features; accomplish or assure performance of all utility relocations or alterations necessary for construction, operation, and maintenance of the project; provide a cash contribution during construction equal to 35 percent of the cost allocated to storm damage reduction; and pay 20 percent of the total cost for improvements to navigation.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used for continuation of preconstruction engineering and design which is scheduled for completion in January 1992.

Santa Barbara Harbor	780,000	0	0	150,000	630,000

Santa Barbara Harbor is located on the coast of southern California, 90 miles northwest of Los Angeles and 350 miles southeast of San Francisco, within the city limits of Santa Barbara. The harbor is the home port for a 160-vessel commercial fishing fleet, including the largest single-port sea urchin operation worldwide. In addition, between 30 and 66 commercial fishing vessels, based at other ports, use Santa Barbara Harbor throughout the year. During periods of offshore fish runs and severe weather, many craft anchor in this harbor. The harbor is not protected against southeast storms, and fishing vessels are frequently driven ashore with resultant total loss or extensive damages. The lack of protected mooring and servicing facilities has greatly limited growth of the commercial fishing industry. The 1985 fish catch was 6,325 tons, with a wholesale value of $6.2 million. The loss of 50 days fishing a year results in commercial fishing losses of about $1 million. Storm damages to Stearns Wharf average $10,000 annually, an

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

a. Navigation: California, Santa Barbara Harbor (Cont'd)

exception being the winter of 1982-1983 which caused $500,000 damage to the wharf. Other storm damages to marinas and storm-related interior dredging costs have totaled about $2.4 million since 1980. Most of these damages are a result of the late winter, early spring storms which approach the harbor from the unprotected southeast. In addition, substantial maintenance dredging costs are incurred by the Federal government to clear the harbor entrance after storm events. A reconnaissance report, completed in Fiscal Year 1988, identified six alternatives with the potential for Federal interest. These alternatives include purchasing a dredge and altering dredging limits, constructing a rock groin with a bypass system, and constructing additional revetment. The estimated project costs vary from $470,000 to $4.4 million. The feasibility report is scheduled for completion in February 1991. The average annual benefits range from $84,000 to $450,000 from commercial fishery, reduced storm damages, and lower Federal dredging costs. The benefit-cost ratio ranges from 1.16 to 2.2 to 1. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor is required to provide lands, easements, rights-of-way, and dredged material disposal areas, if necessary in the construction of the project; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, if necessary in the construction of the project; pay 10 percent of the costs allocated to shallow draft navigation and 35 percent of the cost allocated to storm damage prevention, during construction, and pay an additional 10 percent of the costs allocated to navigation within a period of 30 years following completion (if not offset by a credit allowed for lands, easements, rights-of-way, relocations, and dredged material disposal areas).

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in March 1994.

Ventura Harbor	750,000	30,000	419,000	210,000	91,000

The project is located on the coast of southern California about 70 miles northwest of Los Angeles and Long Beach Harbors, and about 6 miles northwest of Channel Islands Harbor, in Ventura County, California. The present navigation features in the project area include three jetties, an offshore breakwater, a sand trap leeward of the breakwater, an entrance channel, and commercial and recreational facilities. Vessel operators currently experience hazardous navigational conditions, primarily due to the accumulation of littoral sediment in the entrance channel. The sediment accumulates at such a rate that the entrance channel must be dredged frequently to maintain channel depths of 20-30 feet. The harbor has been dredged 11 times in the last 13 years with an average annual accumulation of 800,000 cubic

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

a. Navigation: California, Ventura Harbor (Cont'd)

yards. Approximately $1.6 million is spent annually to maintain the entrance channel and sand trap. The Ventura Harbor is a small-craft harbor providing services to both commercial and recreation interests. There are 1600 berthing facilities in the harbor that are available to commercial vessels and the general public. Harbor facilities include three boat repair facilities, two fuel docks, three cranes for off-loading commercial fishing vessels, three wholesale fish buying stations, a public launch ramp facility, a dry boat storage, and numerous retail businesses and hotels. A support facility for offshore oil developments operates five oil crew boats and fifteen services-supply boats. These vessels navigate the entrance channel 10 to 15 times daily. Economic losses due to shoaling and wave conditions include damage to vessels, delays for vessels navigating the channel, income losses to dependent businesses, high maintenance dredging costs, and losses of recreational use of the harbor area. Sales activity within the boundaries of Ventura Harbor gross approximately $30 million annually, of which $16 million is business activity directly dependent on an adequate entrance channel. The feasibility report was completed in September 1989. The recommended project includes structural and non-structural measures consisting of constructing a separate southern breakwater, extending the offshore breakwater, and deepening and extending the sand trap. The project would cost about $7 million (October 1989 price level). The average annual benefits amount to $1,170,000, all navigation. The benefit-cost ratio is 1.9 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor is required to provide lands, easements, rights-of-way, and dredged material disposal areas, if necessary in the construction of the project; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, if necessary in the construction of the project; pay 10 percent of the costs allocated to shallow draft navigation during construction, and pay an additional 10 percent of the costs allocated to navigation within a period of 30 years following completion (if not offset by a credit allowed for lands, easements rights-of-way, relocations, and dredged material disposal areas).

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design, which is scheduled for completion in June 1992.

TOTAL NAVIGATION	2,840,000	95,000	849,000	805,000	1,091,000

b. Flood Control: The amount of $9,220,000 is requested to continue nine PED activities and complete four PED activities in Fiscal Year 1991.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: (Cont'd)					
Arizona					
Nogales Wash	1,400,000	335,000	765,000	300,000	0

The project area is located adjacent to the United States - Mexico border, in the central and northern portions of the city of Nogales, in Santa Cruz County, Arizona. Nogales Wash is the major drainage system for the city of Nogales. It originates in Mexico and enters Arizona, as a covered floodway, which was constructed by the International Boundary and Water Commission during the 1930's. Urbanization in Nogales, Mexico, current population 240,000, has greatly increased runoff into the Nogales Wash floodplain, causing frequent flooding and erosion problems in Nogales, Arizona. A flood in October 1977 caused over $700,000 in damages and displaced 29 families. At October 1989 price levels, a similar flood would cause about $1.29 million in damages. Flooding also occurred along Nogales Wash in October 1983, causing about $450,000 ($515,000 at 1989 prices) in damages, resulting in the President declaring Santa Cruz County a disaster area. Flooding in July 1984 caused an additional $200,000 in damages in the Nogales area. The feasibility report was completed in June 1988. The plan under consideration includes channels and non-structural solutions and would cost approximately $8.5 million (October 1989 price level). The average annual benefits amount to $1,370,000 ($1,360,000 for flood control and $10,000 for recreation). The benefit-cost ratio is 2.1 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, and disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for construction of the project; pay five percent of the costs allocated for flood control; pay one half of the separable costs allocated to recreation; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent; and bear all costs of operation, maintenance, and replacement of recreation and flood control facilities.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used for completion of preconstruction engineering and design in December 1990.

Rillito River	2,250,000	760,000	345,000	610,000	535,000

The project is located in the Tucson metropolitan area, Pima County, Arizona. The city of Tucson has a population of

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: Arizona, Rillito River (Cont'd)

over 535,000. The Rillito River drains an area of about 1,000 square miles and empties into the Santa Cruz River at Tucson. Urban development within the project area is subject to serious flood damage. Seven significant floods occurred from 1962 to 1983 causing serious damage to businesses, residential property, agriculture, and transportation arteries. The October 1983 flood of record caused damages estimated at $10,000,000 ($12,600,000 at 1989 prices). The Survey Report was approved by the Board of Engineers for Rivers and Harbors in March 1987. The selected plan provides for flood damage reduction along 13.2 miles of the Rillito River within the metropolitan area at an estimated cost of $20,700,000. The plan includes grade control structures to prevent degradation of the river bottom. The project would provide protection against flows up to 29,700 cubic feet per second, the flood of record that occurred in October 1983. The project would also provide recreational opportunities for residents of the Tucson metropolitan area. The average annual benefits amount to $2,096,000 ($1,923,000 for flood control and $173,000 for recreation). The benefit-cost ratio is 1.2 to 1 at 8-7/8 percent.

The project was authorized for construction by the Water Resources Development Act of 1986, with the following cost-sharing requirements: Local interests will be required to provide lands, easements, rights-of-way, and disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for construction of the project; pay five percent of the costs allocated to flood control; pay one half of the separable costs allocated to recreation; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent; and bear all costs of operation, maintenance, and replacement of recreation and flood control facilities. In accordance with Section 104 of the Water Resources Development Act of 1986, the local sponsor will be given credits of $6.2 million for locally constructed flood control work determined to be compatible with the proposed project.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design studies. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design, which is scheduled for completion in August 1992.

California

American and Sacramento Rivers	12,000,000	0	0	2,000,000	10,000,000

The project lies on the western slope of the Sierra Nevada range in Placer, El Dorado and Sacramento Counties. The

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, American and Sacramento Rivers (Cont'd)

American River watershed drains about 2,100 square miles of mostly rugged mountainous area and is comprised of the North, Middle, and South Forks of the American River that flow generally westward into Folsom Lake, through the city of Sacramento, and into the Sacramento River. Because of the interaction of river flows and water stages, the Sacramento River from the American River upstream to Verona, the Sacramento Bypass, and the Yolo Bypass from Fremont Weir to Freeport are also part of the project area. Flood events could potentially impact more than 350,000 people and property valued at about $17 billion. Folsom Lake and existing levees along the lower American River, Sacramento River, and tributary streams and channels provide flood protection to the highly urbanized Sacramento area. However, recent evaluations indicate that the level of flood protection in the Sacramento area and vicinity is at about the 63-year level. The February 1986 storms filled Folsom Lake and necessitated record releases downstream. Because of the significant flood threat, 500 people were put on "levee watch" as these record flows passed through the city of Sacramento. Due to the 1986 storms, an extensive flood fighting effort was made by the Corps at a cost of $3 million and an additional $10 million was required for post flood repair work. This project will provide increased flood protection for the Sacramento area. Local interests have stated they want a minimum of 200-year level of flood protection. The cost shared feasibility studies currently underway include Sacramento Metropolitan Area and American River Watershed. Both studies are scheduled for completion in January 1991. The potential project will most likely consist of a dam on the American River near the city of Auburn, and levee and channel improvements in the Sacramento, West Sacramento and Natomas areas. The preliminary plan of improvement is estimated to cost about $500 million. This plan would have a benefit-cost ratio of about 2.5 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost sharing and financial concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay a minimum of five percent in cash of the costs allocated to flood control; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to at least 25 percent; and bear all costs of operation, maintenance, and replacement of flood control facilities.

Funds requested for Fiscal Year 1991 will be used to initiate preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in September 1993.

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Study	Estimated Federal Cost $	Prior to FY 1990 $	Allocation FY 1990 $	Allocation FY 1991 $	to Complete After FY 1991 $
b. Flood Control: California (Cont'd)					
Coyote and Berryessa Creeks	2,000,000	814,000	762,000	424,000	0

The project is located in the cities of San Jose and Milpitas, California immediately south of San Francisco Bay, in the Santa Clara Valley. The current population of San Jose and Milpitas is 733,000 and 45,000, respectively. Coyote Creek drains about 350 square miles and Berryessa Creek drainage basin covers about 22 square miles. The area is composed of large industrial complexes and some residential development. The December 1955 maximum flood of record on Coyote Creek would have caused damages of over $9.1 million under October 1989 prices and conditions of development. The most recent flood in February 1983 caused over $6 million in damages. Flooding on Berryessa Creek in February 1983 caused damages to residential and commercial/industrial properties due to overbank flooding. The feasibility report was transmitted to Congress in December 1989. The project recommended in the feasibility report was estimated to cost $60.8 million ($43.1 million Federal, $17.7 million non-Federal), with average annual flood control benefits of $7 million, and a benefit-cost ratio of 1.2 at 8-7/8 percent and 1988 price levels. The recommended project includes an overflow channel and offset levees on Coyote Creek; and two sedimentation basins, a concrete lined trapezoidal channel, and offset levees on Berryessa Creek. Subsequent to completion of the feasibility study detailed design was initiated and is currently underway. Design studies to date indicate that the project cost will increase to about $70.6 million ($47.5 million Federal, $23.1 million non-Federal). An update of the project benefits is currently underway to determine the project's viability prior to any decision to proceed to construction. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, rights-of-way, and dredged material disposal areas, presently estimated at $810,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project, presently estimated at $260,000; pay five percent of the costs allocated to flood control, presently estimated at $3,060,000; pay an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent, presently estimated at $1,210,000; and bear all costs of operation, maintenance and replacement of flood control facilities presently estimated at $545,000 annually. In addition, the local sponsor will be required to manage hazardous and toxic wastes on project lands for which no cost sharing credit shall be given. In accordance with Section 104 of the Water Resources Development Act of 1986, the Assistant Secretary of the Army for Civil Works determined locally constructed flood control work was compatible with the proposed Federal project and approved credit be allowed the local sponsor. Approximately $8,630,000 in construction related credits and $3,730,000 for lands, easements, rights-of-way, and relocations credits have been identified for this project. The actual final amount which will be credited to the local sponsor will be subject to audit findings. The Water Resources Development Act of 1988 provided that the report

Study	Estimated Federal Cost $	Prior to FY 1990 $	Allocation FY 1990 $	Allocation FY 1991 $	to Complete After FY 1991 $

b. Flood Control: California , Coyote and Berryssa Creeks (Cont'd)

include recommendations for reimbursement of local interests for work undertaken after 17 November 1988 which is integral to the project. Reimbursement would be limited to $3,000,000. The recommendation was included in the Chief of Engineers Report and a Memorandum of Agreement was signed in August 1989. Construction was initiated by local interests in September 1989.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used to complete work on the General Design Memoranda and prepare plans and specifications for the initial construction contract. Preconstruction engineering and design is scheduled for completion in September 1991.

Dry Creek	620,000	0	10,000	300,000	310,000

The Dry Creek project area is located in Placer County, California in the southeast portion of the Sacramento Valley including the city of Roseville, and drains approximately 80 square miles. The 1988 population for Roseville is estimated at 34,000. Flood problems result from excess runoff that overflows onto lands adjacent to inadequate drainage channels. Urbanization has been occurring in the Dry Creek basin and is projected to continue as the Sacramento Metropolitan area increases in size. The 500-year floodplain includes over 1,000 acres with a damageable property value in excess of $80 million. The Roseville area has a long and continuous history of flooding. Recent floods include the January 1982 flood, March 1983 flood and the flood-of-record in February 1986. Flooding during the 1986 storms caused approximately $7.5 million in damages to the Roseville area (1989 prices). The project most likely to be recommended is estimated to cost $5.9 million, and consists of a combination of managed floodway, intermittent excavated channel, and segments of low floodwalls along portions of Dry, Cirby, and Linda Creeks. This project will convey the 100-year design flow with protection for the existing structures within the 100-year floodplain. Damages would also be significantly reduced from floods exceeding the design flow. This project also includes about a 3.5 mile recreation trail adjacent to the project channels. The cost-shared feasibility study is currently scheduled for completion in August 1990. The average annual benefits for the project are estimated at $862,000 ($776,000 for flood control and $86,000 for recreation). The benefit-cost ratio is 1.4 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide all lands, easements, rights-of-way, and dredged material disposal areas, presently estimated at $2,400,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project, presently estimated at $1,563,000; pay 5 percent of the costs allocated to flood control, presently estimated at $124,000; and bear all costs of operation,

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, Dry Creek (Cont'd)

maintenance, and replacement of flood control facilities presently estimated at $50,000 annually; pay one-half of the separable costs allocated to recreation, presently estimated at $153,000, and bear all costs of operation, maintenance, and replacement of recreation facilities presently estimated at $6,000 annually; and contribute the incremental cost between the National Economic Development Plan and the locally preferred plan, presently estimated at $100,000. The local sponsor's share of flood control project costs is expected to exceed 50 percent of the total project costs. Subsequent to completion of the project and determination of final project costs, the local sponsor will be reimbursed for a portion of the amount that the non-Federal costs allocated to flood control exceed the Federal construction costs. The reimbursement will be limited to what 50-50 cost sharing would have been for the National Economic Development Plan.

Fiscal Year 1990 funds will be used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design which is scheduled for completion in September 1992.

Los Angeles County Drainage Area	12,000,000	0	506,000	2,000,000	9,494,000

The 2,000 square-mile Los Angeles County Drainage Area, with a current population of 8.4 million, is protected by structures which include 5 major reservoirs, 22 debris basins, and 470 miles of channel improvements. These improvements, protecting the second largest urban metropolitan area in the United States, have prevented over $3.7 billion in damages since construction. However, the floods of 1969 in Los Angeles County caused severe and widespread damages of over $12 million, $47.7 million at 1989 prices, and the floods of 1980 caused damages in excess of $20 million, $31.8 million at 1989 prices. As urbanization of the basin has grown over the past 40 years, the ability of the existing systems to provide design levels of protection has diminished. Some elements of the system are nearly 50 years old, and the storage reservation for sediment in the system's flood control dams, for example, is nearly exhausted. The February-March 1980 floods exceeded the capacity of the channel in the upper reaches of the Los Angeles River and very nearly overtopped the levee in the lower Los Angeles River near the city of Long Beach. Breaching of the levee could have induced catastrophic damages to residential, commercial, and industrial properties in Long Beach. Studies to date indicate that a 100-year flood will impact 52,000 acres, with damages totaling about $2.25 billion. There are several areas of the system that cannot control a 50-year flood event. The feasibility report is scheduled for completion in August 1990. The proposed National Economic Development Plan will provide about a 130-year level of flood protection and would raise channel walls from two to eight feet on the Rio Hondo and on the Lower Los Angeles River from the confluence with the Rio Hondo to the Pacific Ocean, a total project length of 21

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, Los Angeles County Drainage Area (Cont'd)

miles. The channel height would be raised with concrete parapet walls. Twenty-six bridges would need raising or modifying along the project length. The Los Angeles River channel would be widened in a 1.5-mile reach below the confluence with the Rio Hondo. The existing bicycle and equestrian trails will be retained in the new plan. The estimated project construction cost is $300 million (October 1989 price level). The average annual benefits for the proposed project are estimated at $57 million, all flood control. The benefit-cost ratio would be 2.9 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, and disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for construction of the project; pay 5 percent of the costs allocated for flood control; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent; and bear all costs of operation, maintenance, and replacement of flood control facilities.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design including the General Design Memorandum, model studies and design contracts. Fiscal Year 1991 funds will be used to continue work on the General Design Memorandum, including hydrology, hydraulics, a physical model of the Rio Hondo and the lower Los Angeles River, and design and cost studies. Preconstruction engineering and design is scheduled for completion in September 1995.

Lower Mission Creek	1,470,000	0	262,000	550,000	658,000

The project is located in Santa Barbara County about 100 miles northwest of Los Angeles, California. Mission Creek drains an area of 12.2 square miles and flows from the south slope of the Santa Ynez Mountains through heavily developed portions of the city of Santa Barbara into the Pacific Ocean. Since 1960, the population has increased about 117 percent in Santa Barbara County and 40 percent in the Mission Creek area. The Mission Creek floodplain is a fully developed residential, commercial, and industrial area. In 1980, a flood damaged residential and commercial property and closed State Highway 101, a major transportation route between Los Angeles and the northern California coastal cities of San Jose and San Francisco. The floods of 1978 and 1980 resulted in a demand for flood protection along Mission Creek, the greatest unsolved flood hazard of any stream in the county. The feasibility study was completed in Fiscal Year 1987. The recommended project, estimated to cost $10,460,000 (October 1989 price level), consists of 1.2 miles of concrete channelization for the lower portion of Mission Creek. This plan is designed to

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, Lower Mission Creek (Cont'd)

prevent a 100-year level of flood damages. The average annual benefits amount to $1,074,000, all flood control. The benefit-cost ratio is 1.1 to 1 at 8-7/8 percent.

The project was authorized for construction by the Water Resources Development Act of 1988. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor is required to provide lands, easements, rights-of-way, and disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for construction of the project; pay 5 percent of the costs allocated to flood control; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent; and bear all costs of operation, maintenance, and replacement of flood control facilities.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to continue preconstruction engineering and design which is scheduled for completion in September 1992.

Napa River	5,000,000	3,390,000	1,144,000	410,000	56,000

The project is located in the city and county of Napa, California. The Napa River Basin, comprising 426 square miles ranging from tidal marshes to mountainous terrain, is subject to severe winter storms and frequent flooding. In the lower reach of the river, flood conditions are aggravated by high tides and local runoff. Floods in the Napa area have occurred in 1955, 1958, 1963, 1965, and 1986 (flood of record). Damages during the February 1986 flood amounted to over $50 million and the flood forced the emergency evacuation of over 5,000 residents. Almost all of these damages would have been prevented by the project. The December 1955 flood inundated 4,900 acres within the project area. The population in the city of Napa, approximately 57,000 in 1988, is expected to exceed 70,000 persons by the year 2020. Present value of lands and improvements in the area to be protected is $435 million. The project will protect human life, reduce flood damage to residential, industrial and agricultural property and encourage higher land use. The previously approved flood control plan included 11 miles of enlarged channels, levees, and floodwalls and recreation facilities along Napa River and would provide a high level of protection. The plan of improvement for Napa Creek includes a series of five concrete box culverts extending a distance of 2,500 feet from Napa River to Jefferson Street. The estimated project cost of this plan is $121,200,000 at October 1989 prices. However, the local sponsors have expressed interest in developing a reduced scope plan that would be more suited to their financial capability. The benefit-cost ratio for the previously approved plan is 1.1 to 1 at 3-1/4 percent, 1975 price level. Preliminary evaluations based on recent flooding and current conditions indicate that a reduced scope plan would probably be

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, Napa River (Cont'd)

economically justified.

The project was authorized for construction by the Flood Control Act of 1965. Authorization was modified by the Flood Control Act of 1976 to include Napa Creek improvements. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests are required to provide lands, easements, rights-of-way and dredged material disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; pay five percent of the costs allocated to flood control; pay an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent; and bear all costs of operation, maintenance, and replacement of flood control facilities. The non-Federal first cost of the previously approved plan would be $43,485,000 based on current cost sharing requirements, and annual operation and maintenance costs would be about $500,000. However, the Federal and non-Federal shares of a reduced scope plan, while not yet available, are expected to be substantially lower than the previously approved plan.

Fiscal Year 1990 funds will be used to continue preconstruction engineering and design. Fiscal Year 1991 funds will be used to complete the General Design Memorandum and Environmental Impact Statement and initiate plans and specifications for the first construction contract. Preconstruction engineering and design is scheduled for completion in March 1992.

San Lorenzo River	550,000	0	0	100,000	450,000

The project area is located within the city limits of Santa Cruz, California, about 70 miles south of San Francisco and includes the lower 2.5 miles of the San Lorenzo River which terminates at Monterey Bay. The river flows through a highly developed business, industrial, and residential area. Extensive flooding occurred in 1955 which inundated 410 acres and caused damages in excess of $7 million. As a result, a flood control project consisting of levee and channel improvements, was constructed and completed in 1959 by the Corps of Engineers. A large amount of sediment deposited in the project channel has significantly reduced the level of protection. The National Economic Development Plan developed in the reconnaissance phase recommends constructing floodwalls on top of the existing project levees on both sides of the San Lorenzo River from the mouth to the State Highway 1 bridge. Replacement of the Water Street bridge and some annual maintenance dredging is also part of this plan. The estimated cost of this plan is $6.4 million, and is designed to provide a 90-year level of protection. The feasibility report is scheduled for completion in May 1991. The average annual benefits are estimated at $1,330,000 at October 1988 price levels. The benefit-cost

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, San Lorenzo River (Cont'd)

ratio is 2.0 to 1 at 8-7/8 percent. A project modification has not yet been authorized for construction.

In accordance with cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way and dredged material disposal areas presently estimated to be available without additional cost since these requirements were provided with the existing flood control project; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project, presently estimated at $3,480,000; pay five percent of the costs allocated to flood control, presently estimated $320,000; and bear all costs of operation, maintenance, and replacement of flood control facilities, presently estimated at $106,000 annually. The local sponsor's share of flood control project costs is expected to exceed 50 percent of the total project costs. Subsequent to completion of the project and determination of final project costs, the local sponsor will be reimbursed for one-half of the non-Federal costs allocated to flood control in excess of Federal construction costs.

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in November 1993.

San Rafael Canal	750,000	0	0	150,000	600,000

The project area is located in the city of San Rafael, California, about 10 miles north of San Francisco. San Rafael Canal provides the outlet for San Rafael Creek into San Francisco Bay and also provides access for small-craft to upstream harbors. The canal is surrounded by San Rafael's central business district and dense residential areas. The estimated current value of the approximately 4,300 properties subject to flooding along the canal is $584 million. Approximately four square miles of high density development is located on bay fill along the canal, which has experienced continued land subsidence. In January 1982, storm runoff from the creek, combined with high tides on the Bay and strong easterly winds, caused overtopping of the canal and extensive flooding of surrounding commercial and residential properties. Damages attributed to this event were approximately $32 million at current prices. An initial appraisal for flood control, conducted under the Continuing Authorities Program, indicated a viable flood control solution probably existed for improving the canal, but was beyond the scope of the Continuing Authorities Program. The National Economic Development Plan developed in the reconnaissance phase recommends construction of a tide barrier structure upstream of the mouth of the canal with bypass pumps, a tie-back levee system and localized improvements for the Marina Vista neighborhood. The estimated cost of this plan is $18 million and is designed to protect against the 500-year event. A cost shared feasibility study is currently underway, and a feasibility report

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: California, San Rafael Canal (Cont'd)

is scheduled for completion in February 1991. The average annual benefits are estimated at $6,965,000 (October 1986 price level), all flood control. The benefit-cost ratio is 4.7 to 1 at 8-7/8 percent. The project is not yet authorized for construction.

In accordance with cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, and rights-of-way and dredged material disposal areas, presently estimated at $3,900,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to storm damage reduction to 35 percent of the total first project cost, presently estimated at $6,300,000; and bear all costs of operation, maintenance, and replacement of storm damage protection facilities, presently estimated at $41,400 annually.

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in May 1994.

Nevada					
Tropicana and Flamingo Washes	4,000,000	0	0	500,000	3,500,000

The project area is located west of and through the urbanized Las Vegas area along both Tropicana and Flamingo Washes, in southern Nevada. Population growth in the Las Vegas Valley, from 94,000 in 1959 to approximately 696,700 in 1989, has increased the potential and severity of urban flood damages as development has taken place along Tropicana and Flamingo Washes. The July 1975 flood caused $5 million in damages, $10.2 million at current prices, throughout the greater Las Vegas communities. The severity of the July and August 1984 flooding and associated damages, estimated at $6.5 million, resulted in a Presidential disaster declaration for Clark County, including the Las Vegas Valley, in September 1984. Clark County also passed an emergency $15 million bond issue to deal with the flooding problem. In June 1985 the Clark County Regional Flood Control District was created by the Nevada State Legislature to provide an effective organization to address the flood problems in Clark County. The flood control district completed a Flood Control Master Plan in May 1986 which identifies a recommended plan for the Las Vegas Valley. An ongoing cost shared feasibility study is evaluating plans of improvement which will reduce the threat of serious flooding to development along the Tropicana Wash and Flamingo Wash tributaries. Plans currently being evaluated include structural and nonstructural means to reduce flood damages and provide erosion control, water supply, recreation, and wildlife

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: Nevada, Tropicana and Flamingo Washes (Cont'd)

enhancement. The feasibility study is scheduled for completion in March 1991. The most likely type of project resulting from the study will consist of diversion, detention, and channelization facilities. Formulation of the recommended plan of improvement is currently underway and while benefits and costs have not yet been specifically identified, an economically viable project appears likely. The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, and disposal areas; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary for construction of the project; pay 5 percent of the costs allocated for flood control; contribute an additional amount in cash as necessary to bring the non-Federal share of costs allocated to flood control to 25 percent; and bear all costs of operation, maintenance, and replacement of flood control facilities.

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design. Preconstruction engineering and design is scheduled for completion in September 1994.

Truckee Meadows	4,300,000	1,968,000	856,000	1,476,000	0

The project is located in the Reno-Sparks Metropolitan area in Nevada. The Reno-Sparks area contains significant commercial, industrial, and residential developments which are expanding into the low-lying floodplain area. The 1989 population for the cities of Reno and Sparks is estimated to be 127,800 and 56,400 respectively. The flood of record occurred in December 1955 when a peak flow of 20,800 cubic feet per second was measured at Reno. Advanced preparations and a well-coordinated flood fighting program limited damages to $1.7 million. A similar flood today under current conditions of development and October 1989 price levels would result in approximately $350 million in flood damages. Other large floods on the Truckee River have occurred in 1907, 1937, 1950, and 1963. Flood damages in the project area, as a result of the February 1963 flood, amounted to about $1.7 million at that time and would be in excess of $150 million if a similar flood were to occur today. The most recent flooding occurred in February 1986 causing an estimated $10 million in damages. Extensive local flood fighting effort was a critical factor in preventing an additional $70 million in estimated damages. The selected plan of improvement, as identified in the February 1985 feasibility report, consists of approximately 5 miles of floodwalls, 7 miles of levee along the mainstem of the Truckee River, and the replacement of 6 bridges along the Truckee River. Flood control features also include limited channel excavation, a 900-acre detention basin, and backwater levees along Steamboat Creek, Boynton Slough, and the North Truckee Drain to just north of the Interstate Highway 80 crossing. Recreation facilities to be

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $

b. Flood Control: Nevada, Truckee Meadows (Cont'd)

constructed include bicycle and pedestrian paths, river overlooks, and picnic sites. Mitigation measures include 31 acres of riparian plantings to replace vegetation losses. Fish and wildlife enhancement features are also included. The estimated project cost is $98,000,000 and will provide protection against a 100-year frequency flood event and reduce flood stages for floods greater than the 100-year frequency event. The average annual benefits for the project are estimated at $13,280,000 ($9,720,000 for flood damage reduction, $2,390,000 for recreation, and $1,170,000 for fish and wildlife enhancement). The benefit-cost ratio is 1.7 to 1 at 8-7/8 percent at 1 October 1984 prices.

The project is authorized for construction by the Water Resources Development Act of 1988. In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, rights-of-way, and dredged material disposal areas for flood control, presently estimated at $30,080,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project, presently estimated at $21,600,000; pay 5 percent of the costs allocated to flood control, presently estimated at $4,380,000, and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $175,000 annually; pay one-half of the separable costs allocated to recreation, presently estimated at $2,670,000, and bear all costs of operation, maintenance, and replacement of recreation facilities presently estimated at $127,000 annually and bear all costs of operation, maintenance and replacement of fish and wildlife enhancement facilities presently estimated at $64,000. The local sponsor's share of flood control project costs is expected to exceed 50 percent of the total project costs. Subsequent to completion of the project, and determination of final project costs, the local sponsor will be reimbursed for one-half of the non-Federal costs allocated to flood control in excess of Federal construction costs.

Fish and wildlife enhancement features with an estimated cost of $5,000,000 were included in the authorization at full Federal expense. The Fish and Wildlife Service will be responsible for 75 percent of the annual operation and maintenance of the enhancement features while the local sponsor will provide the remaining 25 percent. The local airport authority has also expressed interest in participating in the enhancement features.

Fiscal Year 1990 funds are being used to continue preconstruction engineering and design, including continuation of supplemental environmental and cultural resources analyses, hydraulic and levee designs, initiation of interior drainage studies, and preparation of cost estimates. Fiscal Year 1991 funds will be used to complete design studies, prepare final environmental documents and a General Design Memorandum, and to initiate plans and specifications for the first construction contract. Preconstruction engineering and design is scheduled for completion in September 1991.

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Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
b. Flood Control: Utah, Upper Jordan River (Cont'd)					
Utah					
Upper Jordan River	600,000	0	200,000	400,000	0

The project is located in Salt Lake County, Utah, just south of the Salt Lake City corporate limit. There has been a long history of flooding which is most commonly associated with snowmelt runoff; however, flooding has also occurred from summer thunderstorms, general rainstorms, and from a combination of snowmelt and rainfall. The most recent flooding occurred in 1982, 1983, and 1984 with the damage estimated in the $3 million range each time. Damage information from the 1982 rain flood suggests that rainfall flooding along the tributary streams is being aggravated by urban development. A feasibility report was completed in Fiscal Year 1987 and is currently under review at the Washington level. The recommended project, estimated to cost $8.8 million, includes construction of a flood control diversion and sediment control structure on Mill Creek about 200 feet above Highland Drive and a 7,440 foot-long, 84-inch-diameter conduit from the diversion structure into the proposed Hillview Detention Basin south of Mill Creek. This plan provides 100-year flood protection on Mill Creek above State Street. The average annual benefits amount to $894,000 (October 1986 price levels), all flood control. The benefit-cost ratio is 1.3 to 1 at 8-7/8 percent (October 1986 price level). The project is not yet authorized for construction.

In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, local interests will be required to provide lands, easements, and rights-of-way, presently estimated at $560,000; modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project, presently estimated at $2,000,000; pay 5 percent of the costs allocated to flood control, presently estimated at $440,000, and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $22,000 annually.

Fiscal Year 1990 funds are being used to initiate preconstruction engineering and design. Fiscal Year 1991 funds will be used to complete preconstruction engineering and design including the preparation of plans and specifications for the conduit, diversion structure and detention basin. Preconstruction engineering and design is scheduled for completion in September 1991.

TOTAL FLOOD CONTROL:	46,940,000	7,267,000	4,850,000	9,220,000	25,603,000

c. Shoreline Protection: None

d. Multiple Purpose Power: None

Study	Total Estimated Federal Cost $	Allocation Prior to FY 1990 $	Allocation FY 1990 $	Tentative Allocation FY 1991 $	Additional to Complete After FY 1991 $
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES, CONTINUING	49,780,000	7,362,000	5,699,000	10,025,000	26,694,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN ACTIVITIES	91,760,000	33,776,000	11,264,000	15,354,000	31,366,000

1027

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Oakland Harbor, California (Continuing)

LOCATION: Oakland Harbor, is located in the City of Oakland, California, on the eastern shore of central San Francisco Bay immediately south of the San Francisco - Oakland Bay Bridge.

DESCRIPTION: The project consists of deepening of the 4 mile Inner Harbor and the 3.4 mile Outer Harbor channels to 42 feet and widening the entrance channel to 1,000 feet; relocation of the Outer Harbor turning basin 3,000 feet westward; and widening the turning basin to 1,800 feet and constructing a 1,200-foot turning basin in the Inner Harbor, 42 feet deep, at mile 3.7.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.4 to 1 at 8-5/8 percent

TOTAL BENEFIT - COST RATIO: 2.7 to 1 at 8-5/8 percent

INITIAL BENEFIT - COST RATIO: 3.0 to 1 at 8-5/8 (FY 1987).

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation (Draft General Design Memorandum) dated March 1988 at December 1986 price levels.

SUMMARIZED FINANCIAL DATA	
Estimated Appropriation Requirement (CoE)	$54,200,000
Estimated Appropriation Requirement (USCG)	80,000
Estimated Total Appropriation Requirement	54,280,000
Future Non-Federal Reimbursement	7,200,000
Estimated Federal Cost (Ultimate)	47,080,000

STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	Not started	July 1993

PHYSICAL DATA

Channels:	Deepening the 4 mile Inner Harbor and 3.4 mile Outer Harbor channel to 42 feet. Widen the Entrance channel to 1,000 feet.
Turning Basin:	Widen Outer Harbor turning basin to 1,800 feet and deepen to 42 feet. Construct 1,200 feet diameter turning basin in Inner Harbor, 42 feet deep, at mile 3.7.

Division: South Pacific District: San Francisco Oakland Harbor, California

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SUMMARIZED FINANCIAL DATA (Continued)

			Accum. Pct. of Est. Fed. Cost
Estimated Non-Federal Cost		25,500,000	
Cash Contribution	$18,000,000		
Other costs	300,000		
Reimbursements	7,200,000		
Commercial Navigation $7,200,000			
Total Estimated Project Cost		72,580,000	
Allocations to 30 September 1989		$ 6,840,000	
Conference Allowance for FY 1990		3,500,000	
Allocation for FY 1990		3,026,000 1/	18
Allocations through FY 1990		9,866,000	
Allocation Requested for FY 1991		4,400,000	26
Scheduled Balance to Complete after FY 1991		39,934,000	
Unscheduled Balance to Complete after FY 1991		0	

1/ Reflects reduction of $338,000 assigned as Savings and Slippage, $36,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $100,000 reprogrammed from the project.

JUSTIFICATION: The Port of Oakland services about 85 percent of all general cargo moving through the Golden Gate, 95 percent of which is containerized. The existing Federal navigation channel serving Oakland Harbor is inadequate for efficient shipping operations and vessel safety as a result of increased vessel traffic and larger containerships. Cargo movement by larger vessels is hampered by the need to load to less than full capacity and to wait for high tides to avoid grounding hazards. Annual tonnage handled by this project amounted to 8.2 million tons in 1986. The Charles P. Howard containership terminal near the upper end of the Inner channel is considered to be state-of-the art. The plan of improvement will provide for further development of the harbors to accommodate the new generation of containerships, avoid tidal delays, improve safety of vessel traffic, and provide maximum efficiency of port operations. Average annual benefits, all commercial navigation, are estimated at $26,800,000 based on 1 December 1986 prices.

FISCAL YEAR 1991: The requested amount of $4,400,000 will be applied as follows:

Engineering and Design	$ 4,400,000
Total	$ 4,400,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursement	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 300,000	
Pay 25 percent of the costs allocated to deep draft navigation during construction.	18,000,000	
Pay an additional 10 percent plus interest of the costs allocated to deep draft navigation within a period of 30 years following completion of construction.	7,200,000	
Total Non-Federal Costs	25,500,000	

STATUS OF LOCAL COOPERATION: By letter dated 2 June 1987, the local sponsor, the Port of Oakland, has indicated its intent to sign the Local Cooperation Agreement satisfying the requirements of the Water Resources Development Act of 1986, PL 99-662. The Agreement is scheduled to be signed in February 1992.

The current non-Federal cost estimate of $18,300,000, which includes a cash contribution of $18,000,000, is an increase of $200,000 from the latest non-Federal cost estimated of $17,800,000 presented to Congress (FY 1990), which included a cash contribution of $17,500,000. In a meeting to discuss cost sharing and a draft Local Cooperation Agreement on 23 September 1988, the non-Federal sponsor indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

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COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $54,200,000 is an increase of $600,000 from the latest estimates ($53,600,000) presented to Congress (FY 1990). This change includes the following items:

Item	Incremental Change
Price Escalation on Construction Features	$ +780,000
Design Changes	-180,000
Total	$ +600,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: EIS filed March 1988. Supplemental EIS scheduled for November 1991.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction planning in FY 1984 and to initiate construction in FY 1987. Construction of the total project could not start because of the non-availability of a dredged material disposal site. Studies are in progress to determine disposal sites. The supplemental EIS will address upland, in-bay, and ocean disposal sites, as appropriate.

The Port of Oakland has requested and has been granted authority to proceed with a 38 foot project for the Inner Harbor under Section 215 of Public Law 90-483, subject to receipt of all necessary permits from Federal, State and regional agencies. The Port is planning to dispose of the material at an upland site in the Sacramento-San Joaquin Delta. On 12 July 1989, the Regional Water Quality Control Board (Central Valley) approved a Wastewater Discharge Permit for disposal of dredged material on the levees on Twitchel and Lower Jones Tract, subject to submittal and approval by their Executive Officer of final designs, operation plans, monitoring plans, and contingency plans. A land use permit will also be required by the counties of Sacramento and San Joaquin. No schedule is currently available for the issuance of the county's permits or construction of the 38 foot Oakland Inner Harbor Project. The port is considering requesting permission to use the Alcatraz Disposal Site or that the Corps construct the 38 foot project, since approval of the Delta Island Disposal Site has been a protracted, slow process and the cost of using the Delta Site is approaching the threshold of economic feasibility.

The current estimate for the authorized project is based on disposal of most of the dredged material at the B1B ocean disposal site, approximately 26 miles southwest of the Golden Gate Bridge and disposal of a limited amount of material, not suitable for acquatic disposal, at an upland site.

1031

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: Sacramento River Deep Water Ship Channel, California (Continuing)

LOCATION: The project is located on the Sacramento River between Collinsville and the Port of Sacramento, a distance of about 43 miles, in the counties of Sacramento, Contra Costa, Solano, and Yolo, California.

DESCRIPTION: The project will deepen the existing 30 feet deep ship channel to 35 feet, with selective widening. Fish and wildlife habitat mitigation will be constructed as well as salinity mitigation features, if required.

AUTHORIZATION: Supplemental Appropriations Act of 1985 and Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 3.8 to 1 at 8-1/8 percent.

TOTAL BENEFIT-COST RATIO: 2.6 to 1 at 8-1/8 percent.

INITIAL BENEFIT-COST RATIO: 2.5 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation in the General Design Memorandum, March 1986, approved in May 1987 at 1 Oct 1985 price levels.

1032

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$21,700,000
Corps of Engineers	$21,400,000	
United States Coast Guard	300,000	
Estimated Non-Federal Cost		$21,700,000
Cash Contributions	7,130,000	
Other Costs	14,570,000	
Total Estimated Project Cost		$43,400,000

STATUS (1 JAN 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	5	Sep 1994

PHYSICAL DATA

Channels:
Deepen existing 30 foot Sacramento Deep Water Ship Channel from Collinsville to the Port of Sacramento to 35 feet with selective widening.

Division: South Pacific

District: Sacramento

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Sacramento River Deep Water Channel, California

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 3,853,000	
Conference Allowance for FY 1990	2,800,000	
Allocation for FY 1990	509,000 1/	
Allocations through FY 1990	4,362,000	20
Allocation Requested for FY 1991	$ 3,900,000	39
Scheduled Balance to Complete After FY 1991	13,138,000	
Unscheduled Balance to Complete After FY 1991	0	

PHYSICAL DATA (Continued)

Fish and Wildlife Areas:
Deposit dredged material at Prospect Island to aid in development of wetland and upland habitat for fish and wildlife mitigation purposes.

1/ Reflects reduction of $270,000 assigned as savings and slippage, $29,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,992,000 reprogrammed from the project.

JUSTIFICATION: Inadequate channel depths and widths produce serious detriments to deep-draft commercial vessel traffic using the navigation channel on the Sacramento River from Collinsville to the Port of Sacramento. Since the existing channel was completed in 1963, tonnages have increased as a result of increased productivity of the agricultural industry in the northern and central portions of California, increased exports of forest products from this region, and increased foreign demand for agricultural products. Imports, including nitrogenous fertilizers, bulk commodities, and general cargo have also increased during this period. In addition, the channel has provided deepwater access for industries in the service area. Development and change in waterborne commerce have been rapid in recent years. New shipping techniques and modern terminal development have been necessary to accommodate this increased commerce. Economic growth in the Orient is generally expanding at a faster rate than in the rest of the world, and new or prospective trade policies point to the expansion of United States trade in these countries. This trade is significant to the Port of Sacramento since the Port's service area produces large quantities of rice, other grains, wood chips, and other dry bulk products required in the economy of the Orient. In 1988, 1,100,000 tons of commodities moved through the Port of Sacramento. With the increase in the shipping industry, vessel sizes have also increased accordingly. Currently these larger vessels must carry only a partial load going to or from the Port of Sacramento because of the channel depth restriction (only 20% of the world's fleet can currently load to full design draft). To remain competitive with other western ports, the channel deepening is vital to the Port of Sacramento. Once deepened, the Port will be able to accommodate 70% of the world's fleet at full design draft. Average annual benefits at 1 Oct 85 price level are $9,922,000, all navigation.

1033

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate deepening of channel from Mile 35.0 to Mile 25.0	$1,070,000
Complete deepening of channel from Mile 41.5 to Mile 35	2,200,000
Engineering and Design	300,000
Supervision and Administration	330,000
Total	$3,900,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 6,800,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	7,770,000	
Pay 25 percent of the costs allocated to deep draft navigation during construction.	7,130,000	0
Total Non-Federal Costs	$21,700,000	0

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: A Local Cooperation Agreement (LCA) was signed with the Port of Sacramento, the local sponsor, on 27 June 1986, and a modification to the LCA, necessitated by the Water Resources Development Act of 1986, was signed on 6 December 1988. The current non-Federal cost estimate of $21,700,000, which includes a cash contribution of $7,130,000, is a decrease of $1,100,000 from the non-Federal cost estimate of $22,800,000 noted in the Modification to the LCA, which included a cash contribution of $7,300,000.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $21,400,000 is a decrease of $200,000 from the latest estimate ($21,600,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ -800,000
Authorized Modifications	-400,000
Post Contract Award and Other Estimating Adjustments	1,000,000
Total	$ -200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement was filed on 8 May 1981; the Supplemental Environmental Impact Statement was filed on 2 January 1987. An Environmental Assessment addressing the environmental impacts of changes in design due to elimination of widening was completed 1 May 1988, and a Finding of No Significant Impact was signed 1 August 1988.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1982 and to initiate construction in the FY 1985 Supplemental Appropriations Act.

The first construction contract for deepening was awarded in February 1989.

1035

APPROPRIATION TITLE: Construction, General - Channels and Harbors (Navigation)

PROJECT: San Francisco Bay to Stockton, California (John F. Baldwin and Stockton Ship Channels)(Continuing)

LOCATION: The project is located on navigation channels that extend from the San Francisco Bay entrance to the Port of Stockton through San Francisco, Marin, Contra Costa, Solano, Sacramento, and San Joaquin Counties.

DESCRIPTION: The project consists of deepening the San Francisco Bar Channel to 55 feet, the John F. Baldwin Ship Channel through Pinole Shoal to 45 feet and the remaining Stockton Ship Channel to 35 feet, bank protection, maintenance of bank protection, and wetland wildlife habitat enhancement.

AUTHORIZATION: 1965 River and Harbor Act

REMAINING BENEFIT-REMAINING COST RATIO: Stockton Ship Channel, Avon to Stockton - essentially completed;
John F. Baldwin Ship Channel to Martinez 6.6 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: Stockton Ship Channel, Avon to Stockton - 4.3 to 1 at 3-1/4 percent;
John F. Baldwin Ship Channel to Martinez - 4.8 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 3-1/4 percent (Total Project) (FY 1970)

BASIS OF BENEFIT-COST RATIO: Benefits for the Stockton Ship Channel from Avon to Stockton portion of the project are based on the latest evaluation for that portion, dated September 1980 at 1980 price levels. Benefits for the John F. Baldwin Ship Channel to Martinez portion including the West Richmond, Pinole Shoal and Carquinez Straits Channels, are based on the latest evaluation of that portion dated May 1988 at 1988 price levels.

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost (COE)		$ 123,800,000	Entire Project	37	Nov 1994
Estimated Federal Cost (USCG)		1,100,000			
Total Estimated Federal Cost		124,900,000			
Estimated Non Federal Cost		29,200,000			
Cash Contributions	20,000				
Other Costs	29,180,000				
Total Estimated Project Cost		$ 154,100,000			

1036

SUMMARIZED FINANCIAL DATA (Continued)

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	$ 54,822,000	
Conference allowance for FY 1990	2,650,000	
Allocation for FY 1990	2,042,000 1/	
Allocations through FY 1990	56,864,000	46
Allocation Requested for FY 1991	$ 2,050,000	48
Scheduled Balance to Complete after FY 1991	64,886,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $256,000 assigned as savings and slippage, $27,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $325,000 reprogrammed from the project.

PHYSICAL DATA

Channels: Deepen San Francisco Bar Channel to 55 feet. Deepen main internal bay channels upstream to Avon to 45 feet, and deepen the existing alignment of the Suisun Bay and Stockton Ship Channels from Avon to Stockton to 35 feet.

Revetment: Place rock revetment on levees bordering the ship channel.

Turning Basin: Provide access and turning basin facilities near the refinery piers at Martinez, Avon, and Oleum.

Maneuvering Area: Enlarge and deepen maneuvering areas adjacent to major petroleum cargo terminals to 45 feet.

1037

JUSTIFICATION: Inadequate channel depths and widths, and circuitous navigation channels produce serious detriments to deep-draft commercial and military vessel traffic using the navigation channels that extend from the San Francisco Bay entrance upstream to the Port of Stockton. Many existing vessels can use the navigation channels only by partial loading and/or awaiting favorable tides. Both are costly restrictions. Current trends in the shipping industry toward larger, deeper-draft vessels will aggravate these detriments. The project will provide a deeper channel to accommodate the deeper draft vessels and reduce the chance of grounding. Selective dredged material deposits will be used to enhance wildlife conditions. Average annual benefits for the Stockton Ship Channel from Avon to Stockton portion are $8,765,000, all navigation related, based on 1980 price levels; for the John F. Baldwin Ship Channel to Martinez portion are $20,442,000, all navigation related, based on 1988 price levels.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and Complete Wavewash Bank Protection Contract No. 5	440,000
Initiate Channel Adjustment Dredging	260,000
Initiate and Complete Dissolved Oxygen Mitigation	320,000
Engineering and Design	930,000
Supervision and Administration	100,000
Total	$ 2,050,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the River and Harbor Act of 1965, the non-Federal sponsor must comply with the requirement listed below:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation Maintenance and Replacement Cost
Provide lands, easements, rights of ways, and dredged material disposal areas.	$ 19,190,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,980,000	$ 473,000
Berthing	5,010,000	

1038

NON-FEDERAL COSTS: (Continued)

Cash Contribution (The cash contribution is based on a contribution of .04 cents/ cubic yard of dredged material to be used for fill in areas not developed for public use.)	20,000	
Total Non-Federal Costs	$ 29,200,000	$ 473,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Board of Supervisors of Contra Costa County, by resolution adopted 16 October 1979, expressed intention to furnish the required assurances of local cooperation for the John F. Baldwin portion of the project based on the incremental approach to project construction. Formal assurances for deepening and otherwise improving the Stockton Deep Water Ship Channel from Pittsburg to Stockton were furnished by the Stockton Port District by letter dated 9 April 1970. The Stockton Port District provided formal assurances for navigation, and fish and wildlife mitigation and enhancement for the Avon to Stockton portion of the project on 13 April 1982. In accordance with Section 221 of the Flood Control Act of 1970 (Public Law 91-611) a written agreement satisfying all the requirements of local cooperation for Southampton Shoal Channel and Richmond Long Wharf maneuvering area was obtained from the Contra Costa County Board of Supervisors and was signed by the District Engineer 31 July 1984. A written agreement for the West Richmond, Pinole Shoal, Carquinez Strait, and Suisun Bay Channels will be executed with the Contra Costa County Board of Supervisors before any construction is accomplished in those areas. The Board passed a resolution of continued support for this phase of the project on 3 May 1988. A Memorandum of Agreement between the Department of the Army, San Francisco District and Contra Costa County to sample the berthing areas of the project was executed on 12 September 1989.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $123,800,000 is a decrease of $23,900,000 from the latest estimate ($147,700,000) presented to Congress (FY 1990).

ITEM	Amount
Price Escalation of Construction Features	$ - 3,006,000
Authorized Modifications	-20,894,000
Total	-23,900,000

1039

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement (EIS) for the San Francisco Bar Channel was filed on 14 April 1971. The Final EIS for the Stockton Ship Channel, Avon to Stockton, was filed on 26 July 1981. The Final EIS for the Richmond Long Wharf and Southampton Shoal Channels was filed on 15 July 1984. The Final EIS for the remaining work is scheduled for March 1992.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1967 and for construction in FY 1970.

Special engineering studies to identify and quantify the changes in the salinity of the estuary associated with the channel deepening are continuing. These studies include model tests and the development of a data storage and retrieval system to analyze both prototype and model data. The studies are currently addressing the deepening from 35 to 45 feet of the remaining reach of the existing John F. Baldwin Channel. Construction of this reach has been delayed pending completion of the studies and the development of appropriate mitigation measures, if required. These additional studies are scheduled for completion by July 1991.

The Suisun Bay Channel was reclassified to the deferred category on 16 November 89 as construction is not justified at this time. The Suisun Bay Channel - Martinez to Point Edith section included navigation benefits for providing a 45-foot deep channel to the refinery and tank storage facility at Avon. However, since this refinery is linked (via pipeline) to a refinery at Martinez and the financial stability of the tank farm facility is currently uncertain, the benefits of deepening this portion of the Suisun Bay Channel do not appear to justify the costs at this time. Therefore, the total reduction of $25,880,000 (Federal cost - $17,500,000; Non-Federal cost - $8,380,000) have been deleted from the current estimate.

After several years of observing the project channels in operation, it has been determined that the levee setbacks are not required in the Stockton Ship Channel portion of the project. The project sponsors, the San Francisco Bar Pilots Association, and the U.S. Coast Guard concur. Accordingly, the levee setbacks and the associated federal costs of $3,394,000, were eliminated from the project on 15 August 1989.

1040

APROPRIATION TITLE: Construction, General-Local Protection (Flood Control)

PROJECT: Phoenix, Arizona and Vicinity (Including New River) (Stage 2 and Remaining Work) (Continuing)

LOCATION: The project is located in Maricopa County, Arizona, in and adjacent to the city of Phoenix.

DESCRIPTION: The plan of improvement provides for construction of two detention basins and recreation facilities; Arizona Canal Diversion Channel, 16.5 miles long; levees about 4.0 miles along Agua Fria River; 3.1 miles of channel along New and Agua Fria Rivers; bank stabilization about 2.2 miles along Skunk Creek and New River; and flowage easement about 19.5 miles long.

AUTHORIZATION: Flood Control Act of 1965.

REMAINING BENEFIT - REMAINING COST RATIO: 1.09 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 1.9 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 1.8 to 1 at 3-1/4 percent (FY 1980).

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on the Phase II General Design Memorandum approved in May 1982 at 1981 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$231,000,000	
Estimated Non-Federal Cost		187,000,000	
Cash Contribution	$ 12,200,000		
Other Costs	174,800,000		
Total Estimated Project Cost		$418,000,000	
Allocations to 30 September 1989		$139,296,000	
Conference Allowance for FY 1990		28,400,000	
Allocation for FY 1990		31,054,000 1/	
Allocations Through FY 1990		$170,350,000	74

STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	55	Sep 1992

1/ Reflects reduction of $2,740,000 assigned as savings and slippage, $292,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $5,686,000 reprogrammed to the project.

Division: South Pacific

District: Los Angeles

29 JAN 1990

Phoenix, Arizona and Vicinity (Including New River)(Stage 2 and Remaining Work)

57

1041

Allocation Requested for FY 1991	$34,300,000	89
Scheduled Balance to Complete After FY 1991	26,350,000	
Unscheduled Balance to Complete After FY 1991	0	

PHYSICAL DATA

Relocations:
Railroad bridge: $407,000

Detention Basins:
Adobe: 18,350 acre-feet
New River: 43,520 acre-feet

Channels:
Concrete rectangular: 11.5 miles
Concrete trapezoidal: 2.1 miles
Earth bottom trapezoidal: 6.0 miles

Levees: 4.0 miles

Bank Stabilization: 2.2 miles

Flowage Easement: 19.5 miles

Sediment Basin:
Cave Creek: 148 acre-feet
Cudia City Wash: 32.6 acre-feet

JUSTIFICATION: The authorized plan of improvement will protect the Phoenix metropolitan area from floodflows originating in the mountains to the north and west of the city. Damage to property in the overflow area is caused principally by inundation and debris deposition. Floodflows result primarily from local thunderstorms of high intensity and short duration. The population of Phoenix has increased from 107,000 in 1950 to an estimated 981,000 in 1989. Population in the Phoenix metropolitan area in 1989 is over 2.1 million and is expected to increase to approximately 2.9 million by the year 2000. The incorporated area of Phoenix increased from 17 to 375 square miles between 1950 and 1989. This growth, which resulted in the conversion of agricultural and desert properties into urban uses, is the principal reason for the aggravation of the flood problem. The entire project will prevent about 72 percent of the total average annual damages in the overflow area. The 1989 value of the protected area is $14.4 billion, and the 1988 population within the area protected by the entire project is about 270,000. Stage 2 and Remaining Work is the second part of the overall Phoenix, Arizona and Vicinity project. Stage 1 provided for construction of the Cave Buttes and Dreamy Draw Detention Basins. The overall project will provide protection to about 50,500 acres consisting of 19,000 acres of valuable residential land, 2,900 acres of valuable commercial land, 4,400 acres of urban-related land uses, 12,300 acres of valuable agricultural land, and 11,900 acres of undeveloped land and wasteland. In August 1963, a flood occurred about 10 miles from the project area. Had this storm been centered over the project area, it would have caused estimated damages of $526 million (1989 prices), of which about $420 million would have been prevented by the project. Estimated average annual benefits at October 1981 price levels are as follows:

Annual Benefits	Amount
Flood Control	$16,567,000
Recreation	3,794,000
Total	$20,361,000

Division: South Pacific

District: Los Angeles

29 JAN 1990

Phoenix, Arizona and Vicinity (Including New River)(Stage 2 and Remaining Work)

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate construction of Arizona Canal Diversion Channel (ACDC) and recreation facilities from Dreamy Draw to 40th Street and Cudia City Wash sediment basin	$24,467,000
Initiate construction of Cultural Resource Interpretive Center	640,000
Complete construction of channel and recreation from Cave Creek to Dreamy Draw, ACDC	6,743,000
Engineering and Design	720,000
Supervision and Administration	1,730,000
Total	$34,300,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Flood Control Act of 1965, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Cost
Provide lands, easements, and rights-of-way.	$106,874,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	48,418,000	
Pay all costs required to increase the level of protection from 100-year to standard project flood at New River, from Grand Avenue to Olive Avenue and standard project flood channelization downstream from Olive Avenue, provided in lieu of floodage easements in the floodway fringe; compacted fill; and shoring associated with other work.	19,508,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	7,048,000	$990,000
Pay 2.3 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	5,152,000	600,000
Total Non-Federal Costs	$187,000,000	$1,590,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: In conformance with Section 221, Flood Control Act of 1970, Public Law 91-611, a written agreement of unconditional compliance with all requirements for the entire project was obtained from the Board of Directors of Maricopa County Flood Control District and was signed by the Secretary of the Army 21 July 1977. In addition, a recreation cost-sharing agreement for Dreamy Draw Detention Basin was obtained from the city of Phoenix and signed by the Secretary of the Army 16 September 1983. Final Local Cooperation Agreement for recreation at Cave Creek and Cave Creek sediment basin was signed on 28 March 1988. Final Local Cooperation Agreements for recreation at Skunk Creek to 40th Street, Arizona Canal Diversion Channel, and Cave Creek were signed by the cities of Glendale and Phoenix on 6 April and 22 March 1988, respectively.

The current non-Federal cost estimate of $187,000,000, including a cash contribution of $12,200,000, is a decrease of $9,500,000 from the non-Federal cost estimate of $196,500,000 last presented to Congress (FY 1990). The reduction reflects favorable bids for ongoing construction. The cost-sharing agreements indicate the sponsors' willingness and financial capability to contribute in cash 2.3 percent for land enhancement costs and 50 percent for construction of recreation facilities. Our analysis of the non-Federal sponsors' financial capability to participate in the project affirms that the sponsors have a reasonable and implementable plan for meeting their financial commitments.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $231,000,000 is a decrease of $6,000,000 from the latest estimate ($237,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	-$ 521,000
Design Changes	5,995,000
Post Contract Award and Other Estimating Adjustments	- 11,474,000
Total	-$ 6,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA on 27 September 1976. Provisions of Section 404 do not apply because project improvements do not involve placement of fill material or discharge of dredged material into waters of the United States.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and allocated in FY 1974. Funds to initiate construction were appropriated in FY 1980.

1044

In compliance with the Fish and Wildlife Coordination Act, mitigative action has been taken to offset the adverse effects of the approved project. Mitigation action involved the acquisition of a 373-acre area in the Gila River southwest of Buckeye, Arizona, to mitigate the loss of wildlife habitat for the Phoenix project. The Flood Control District of Maricopa County has acquired the agreed upon tract of land and has satisfied the mitigation requirements of the project.

On 23 July 1987, the Phoenix City Council passed a motion supporting the Corps' open-channel design of the Arizona Canal Diversion Channel, Dreamy Draw to 40th Street. The council included a statement requesting the Corps to work with the city's aesthetic task force to do all possible to improve the aesthetics of the channel. The city task force's report dated 5 May 1989 to the council recommended a variety of actions, many of which have already been incorporated in a number of recommendations for aesthetic treatment. On 17 October 1989, the City of Phoenix staff reported on their efforts to implement the various recommendations. The council made positive comments regarding the efforts and approved $600,000 for two additional underpasses for the bike trail. A meeting of the town of Paradise Valley Aesthetic Committee was held on 7 December 1989, and the Committee requested that the Corps of Engineers and the Flood Control District of Maricopa County cover the proposed open channel or develop a tunnel alternative. Corps Representatives explained that the increased cost of these alternatives would have to be funded by the local sponsor or local interests. The local sponsor had previously evaluated deep tunnel and covered channel alternatives and determined that the increased implementation costs were not warranted. The local sponsor will continue to work with the town to determine the feasibility of alternatives to the open channel project.

Flowage easements downstream of the Arizona Canal Diversion Channel are being obtained separately for the floodway and the floodway fringe. Easements on the floodway land will satisfy the open space requirement. Fringe easements are extremely costly, and the local sponsor asked to modify the language to allow the fringe easements to expire if structural flood protection to contain the Standard Project Flood is provided at local cost. Provision of additional flood protection will not circumvent the acquisition of open space lands. Revised language was approved by the Chief of Engineers with minor modifications on 19 February 1989.

1045

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Cache Creek Settling Basin, California (Continuing)

LOCATION: The project is located in Yolo County at the mouth of Cache Creek where it enters the Yolo Bypass, about 2 miles east of the city of Woodland and about 15 miles northwest of the city of Sacramento, California.

DESCRIPTION: The project consists of increasing the capacity of the existing settling basin by raising the perimeter levees an average of 12 feet and extending the levees upstream to County Road 102 to provide 50 year sediment storage capacity. Cobble weir will be enlarged and reconstructed.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: 2.1 to 1 at 8 5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.4 to 1 at 8 5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.4 to 1 at 8 5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum approved 16 August 1988 at 1986 price levels.

1046

SUMMARIZED FINANCIAL DATA				STATUS (1 JAN 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost			$14,700,000	Entire Project	Not started	Sep 1992
Scheduled Construction		$14,330,000				
Unscheduled Construction		370,000				
Estimated Non-Federal Cost			6,700,000			
Scheduled Construction		6,680,000				
Cash Contributions	$1,050,000					
Other Costs	5,630,000					
Unscheduled Construction		20,000				
Cash Contribution	20,000					
Other Costs	0					

Division: South Pacific District: Sacramento Cache Creek Settling Basin, California

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT. OF EST FED. COST
Total Estimated Scheduled Construction Cost	$21,010,000	
Total Estimated Unscheduled Construction Cost	390,000	
Total Estimated Project Cost	$21,400,000	
Allocations to 30 September 1989	$ 1,093,000	
Conference Allowance for FY 1990	5,500,000	
Allocation for FY 1990	4,736,000 1/	
Allocations through FY 1990	$ 5,829,000	40
Allocation Requested for FY 1991	2,100,000	54
Scheduled Balance to Complete After FY 1991	6,401,000	
Unscheduled Balance to Complete After FY 1991	370,000	

PHYSICAL DATA

Levees:
- Length: 14 Miles
- Maximum Height Increase: 13.7
- Average Height Increase: 12.0 Feet

Area: 3,600 acres

Outlet Weir:
- Length: 1,740 Feet
- Height Increase (Initial): 12 Feet
- Height Increase (Year 25): 18 Feet

1/ Reflects reduction of $531,000 assigned as savings and slippage, $57,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $176,000 reprogrammed from the project.

2/ Unscheduled work consists of Weir Enlargement in year 25 of project.

JUSTIFICATION: Cache Creek transports a large volume of sediment downstream to the settling basin. The storage capacity of the basin is now essentially exhausted and Cache Creek's heavy sediment load, about 1.1 million cubic yards annually, is carried into and partially deposited in the Yolo Bypass, affecting the flood flow capacity of the bypass. The remaining sediment causes deposition problems further downstream in flood control and navigation channels such as the Sacramento River Deep Water Ship Channel and the San Francisco Bay system. Construction of the project will solve sedimentation problems, insuring the integrity of the Sacramento River Flood Control Project and about 435 acres of sewage oxidation ponds owned by the city of Woodland. Also, downstream dredging requirements will be reduced. Average annual benefits, all flood control, are estimated at $2,605,000 at October 1986 price levels.

1047

FISCAL YEAR 1991: The requested amount will be used as follows:

Continue Channel, Levee and Outlet Works Construction	$1,400,000
Engineering and Design	350,000
Supervision and Administration	350,000
Total	$2,100,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 5,125,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	505,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	1,070,000	$67,000
Total Non-Federal Costs	$ 6,700,000	$67,000

The non-Federal Sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The State of California Reclamation Board is the local sponsor. A Local Cooperation Agreement satisfying all requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611) and consistent with the Water Resources Development Act of 1986 (Public Law 99-662) is being finalized and will be executed prior to construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $14,700,000 is a decrease of $1,500,000 from the latest estimate ($16,200,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	-$ 70,000
Other Estimating Adjustments	-$1,430,000
Total	-$1,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The project Environmental Impact Statement was filed on 25 July 1980. Subsequently, an Environmental Assessment/Finding of No Significant Impact was prepared 30 July 1986 to reflect deferral of the wildlife refuge (See OTHER INFORMATION).

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1983. Construction funds were first appropriated in FY 1990.

The project as authorized included development of a National Wildlife Refuge within the settling basin. However, the Department of the Army determined that such a refuge would be more appropriately funded and developed by the U.S. Fish and Wildlife Service (USFWS). Accordingly, the refuge feature was reclassified to the deferred category on 11 April 1988, following indication from the USFWS that such a refuge would currently be low on their list of priorities.

1049

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Corte Madera Creek, California (Continuing)

LOCATION: Corte Madera Creek and its tributaries drain an area of about 28 square miles in Marin County, California, and flow into the west side of San Francisco Bay about nine miles north of the Golden Gate Bridge.

DESCRIPTION: The project consists of 3.0 miles of channel enlargement and levees, about 1.8 miles of rectangular concrete channel improvements, and 450,000 cubic yards of redredging on lower Corte Madera Creek.

AUTHORIZATION: 1962 and 1966 Flood Control Acts, modified by the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: Not available pending identification of plan to complete the project.

TOTAL BENEFIT-COST RATIO: Not available pending identification of plan to complete the project.

INITIAL BENEFIT - COST RATIO: 1.7 to 1 at 3-1/8 percent (FY 1966)

BASIS OF BENEFIT-COST RATIO: Will be developed as part of the plan to complete the project.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$17,700,000	Units 1, 2, 3 (Mouth to Lagunitas Road Bridge)	100	June 1989
Scheduled Construction	$ 11,824,000				
Unscheduled Construction	5,876,000				
Estimated Non-Federal Cost		$11,800,000	Unit 4 (Lagunitas Road Bridge to Sir Francis Drake Boulevard)	0	Unscheduled
Scheduled Construction	$ 4,067,000				
Cash Contribution	$ 467,000				
Other Costs	3,600,000				
Estimated Non-Federal Cost			Entire Project	77	Unscheduled
Unscheduled Construction	$ 7,733,000				
Cash Contribution	$ 283,000				
Other Costs	7,450,000				

Division: South Pacific District: Sacramento Corte Madera Creek, California

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Total Estimated Scheduled Construction Cost	$ 23,624,000	
Total Estimated Unscheduled Construction Cost	$ 5,876,000	
Total Estimated Project Cost	$ 29,500,000	
Allocations to 30 September 1989	$ 10,717,000	
Conference Allowance for FY 1990	1,100,000	
Allocation for FY 1990	707,000 1/	
Allocations through FY 1990	11,424,000	65
Allocation Requested for FY 1991	$ 400,000	67
Scheduled Balance to Complete After FY 1991	0	
Unscheduled Balance to Complete After FY 1991	$ 5,876,000	

PHYSICAL DATA

Lower Corte Madera Creek Redredging:	450,000 Cubic Yards
Channel Enlargement and Riprap Levees:	3.0 Miles
Concrete Channel Improvements:	1.8 Miles

1/ Reflects reduction of $106,000 assigned as savings and slippage, $11,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $276,000 reprogrammed from the project.

JUSTIFICATION: Corte Madera Creek Basin is primarily a residential area, suburban to San Francisco. The principal communities include Corte Madera, and Larkspur, with a combined population of about 20,000. Extensive flooding continues to occur through Ross Valley and the communities of Ross, Kentfield, Larkspur, Corte Madera and Greenbrae. The value of lands and improvements to be protected by the project is estimated to be $143 million. The project would provide a high degree of protection to residential, commercial and public property along Corte Madera Creek. Flooding has occurred along Corte Madera Creek eight times in the last thirty one years. The 1958 flood resulted in one death by drowning. Flood flows can currently overtop the channel banks upstream of the completed portion of improved channel and cause flooding throughout the downstream reaches. Completion of the project in the upstream reach to Sir Francis Drake Boulevard (Unit 4) will prevent this flooding problem which has occurred three times in the last nine years. The most severe of these floods occurred in January 1982 and under current conditions would cause $3.4 million in flood damages. It is estimated that the 100 year flood would cause damages estimated at $19.6 million of which $17.2 million would be prevented by the project. Average annual benefits are being revised in current economic analyses to reflect the plan to complete the project.

Division: South Pacific District: Sacramento Corte Madera Creek, California

29 JAN 1990

FISCAL YEAR 1991: The requested amount will be applied as follows:

Engineering and Design	$370,000
Supervision and Administration	30,000
Total	$400,000

NON-FEDERAL COSTS: Local interests are required to: hold and save the United States free from damages due to the construction works; prevent encroachment on flood channels that would result in decreasing the effectiveness of the project for flood control; and adjust all claims regarding water rights that might be affected by the project. The non-Federal sponsor must also comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and waste and dredged material disposal areas.	$ 9,290,000	
Modify or relocate utilities, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	1,760,000	
Pay 1-1/2 percent of the construction costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	760,000	$245,000
Total Non-Federal Costs	$11,800,000	$245,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction (and reimburse its share of construction costs over the life of the project).

STATUS OF LOCAL COOPERATION: The State of California approved state participation in the project by 1965 statute, Chapter 1388. Marin County Flood Control and Water Conservation District has provided numerous resolutions of local cooperation for all previous work. Marin County has provided rights-of-way, accomplished relocations, and furnished the cash contributions in advance of construction in each individual reach. A Local Cooperation Agreement for redredging the lower reach of Corte Madera Creek was executed on 29 June 1985. The work was completed and the lower reach was transferred to the local sponsor for Operation and Maintenance in 1987. The most recent indication of support for the upstream work (Unit 4) was by a resolution on 13 September 1988 from Marin County Flood Control Board.

District: Sacramento

However, significant modifications may be required to complete the project and the execution of a local agreement is delayed pending development of the design (See OTHER INFORMATION). The current non-Federal cost estimate of $11,800,000 which includes a cash contribution of $750,000 is an increase of $200,000 from the estimate last presented to Congress of $11,600,000 which included a cash contribution of $730,000. The Marin County Flood Control District has indicated it is financially capable to contribute the increased non-Federal share of a plan acceptable to local interests. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $17,700,000 is an increase of $2,900,000 from the latest estimate ($14,800,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments	$2,900,000
Total	$2,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final supplemental Environmental Impact Statement for Unit 4 was filed on 13 November 1987. Additional environmental documentation will be required prior to execution of a local agreement for remaining construction features.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1964 and funds to initiate construction were appropriated in FY 1966.

Construction of the original plan for Corte Madera Creek, an open concrete channel, was stopped in 1972 by litigation. Local residents opposed the plan which did not preserve the existing natural creek environment. The project was modified by the Water Resources Development Act of 1986 to direct construction of the upstream reach (Unit 4), from the vicinity of Lagunitas Road Bridge to Sir Francis Drake Boulevard, to include construction of flood-proofing measures necessary for individual properties and other necessary structural measures in the vicinity of Lagunitas Road Bridge, to insure the proper functioning of the completed downstream portions of the authorized project. A supplemental information paper was prepared in July 1988 at the request of the local sponsor to address alternative plans. In April 1989, it was determined that the completed downstream reaches Unit 2 and 3 would not provide the design level of protection. The supplemental information paper was revised in July 1989 to include solutions for downstream reaches. Alternatives to complete project construction including reconditioning of the existing channel to insure design capacity are being reviewed by Marin County Flood Control and Water Conservation District. Remaining construction is unscheduled.

The recommended plan of improvement may require removal of the existing Lagunitas Road Bridge which is on the National Register of Historic Places. The local historical society has expressed opposition to removal of the bridge.

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Dry Creek (Warm Springs) Lake and Channel, California (Continuing)

LOCATION: The project is located about 75 miles north of San Francisco on Dry Creek, a tributary of the Russian River in Sonoma County, California.

DESCRIPTION: The project is a multi-purpose reservoir with 381,000 acre feet of storage behind a 319 feet high earthfill dam. Storage is for flood control, water supply, fishery enhancement, and silt reservation.

AUTHORIZATION: 1962 Flood Control Act and Water Resources Development Act of 1974.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable, since the project is essentially complete.

TOTAL BENEFIT-COST RATIO: Not applicable, since the project is essentially complete.

INITIAL BENEFIT - COST RATIO: 1.5 to 1 at 3-1/8 percent (FY 1967).

BASIS OF BENEFIT-COST RATIO: Not applicable, since the project is essentially complete.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$361,500,000	Entire Project	96	Unsch 1/
Scheduled Construction	$326,295,000				
Unscheduled Construction	35,205,000				
Future Non-Federal Reimbursement		$103,900,000			
Scheduled Construction	$103,900,000				
Unscheduled Construction	0				
Estimated Federal Cost (Ultimate)		$257,600,000			
Scheduled Construction	$222,395,000				
Unscheduled Construction	35,205,000	1/			

1/ Recreational Facilities are unscheduled (see Other Information).

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28 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

				ACCUM. PCT. OF EST. FED. COST	
Estimated Non-Federal Cost			$104,020,000		
Scheduled Construction		$104,020,000			
Cash Contribution		0			
Other Costs	$ 120,000				
Reimbursements:	$103,900,000				
Water Supply	$103,900,000				
Unscheduled Construction:			0		
Cash Contribution		0			
Other Costs		0			
Reimbursements:		0			
Total Estimated Scheduled Construction Cost			$326,415,000		
Total Estimated Unscheduled Construction Cost			35,205,000		
Total Estimated Project Cost			361,620,000		
Allocations to 30 September 1989			$314,620,000		
Conference Allowance for FY 1990			3,950,000		
Allocation for FY 1990			6,875,000 2/		
Allocations through FY 1990			321,495,000	89	
Allocation Requested for FY 1991			3,500,000	90	
Scheduled Balance to Complete After FY 1991			1,300,000		
Unscheduled Balance to Complete After FY 1991			35,205,000		

2/ Reflects reduction of $381,000 assigned as savings and slippage, $41,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $3,347,000 reprogrammed to the project.

PHYSICAL DATA

Dam:
- Type - Earthfill
- Height - 319 feet
- Crest Length - 3,000 feet

Outlet Works:
- Type - Gate Controlled, in a 14.5 ft. diameter tunnel
- Capacity - 7,000 cfs

Storage Capacity:

Flood Control	130,000 ac-ft
Water Supply	212,000 ac-ft
Minimum Pool for Fishery Enhancement	13,000 ac-ft
Silt Reservation	26,000 ac-ft
Total	381,000 ac-ft

Division: South Pacific

District: Sacramento

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Dry Creek (Warm Springs) Lake and Channel, California

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Spillway:
Type - Uncontrolled Overflow
Width - 100 feet
Design Discharge - 28,000 cfs

Relocations:
Roads - About 34 Miles
($36,191,000)
Cemeteries and Utility Lines
($520,000)

Lands and Damages:
Acres - 17,615
Type - Predominantly ranches
Improvements - Farms, vineyards and orchards

Dry Creek Channel Improvements:
Bank protection and channel clearing at critical locations, design capacity 7,500 cfs

Drainage Area:
(Above Dam) 130 square miles

JUSTIFICATION: This project provides flood protection to about 20,500 acres of land in the lower Russian River Basin. The flood plain area is devoted to agriculture (orchards, vineyards and irrigated pasture) and recreation, with 15 resort communities along the lower reaches of the river containing numerous summer and permanent homes. Floods of December 1964 and January 1966 caused estimated damages in the lower Russian River Basin of $5.3 million and $1.9 million respectively. Had Dry Creek Dam been constructed at the time of those floods, damages amounting to $2.7 million and $1.3 million could have been prevented. The improvement reduces the average annual flood damages in the project area by about two-thirds. Damages prevented during the January-February 1986 flood amounted to approximately $13.2 million. Flood protection provided will enhance agricultural land values by enabling higher land utilization, including production of higher income crops, and conversion to low density summer residential use. The project will also provide about 115,000 acre-feet of firm annual yield for municipal and industrial use in the service area, essentially Sonoma and Marin Counties. Sonoma County experienced a critical water supply shortage during the 1975-1977 drought and instituted mandatory water rationing at that time. However, during the latest drought since 1988, the Dry Creek project has been operational and mandatory rationing has not been required.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate Control Tower Grouting	1,210,000
Initiate and Complete Spillway Stabilization	450,000
Initiate and Complete Dam Access Road Paving	120,000
Initiate and Complete Air Vent Modification	25,000
Initiate and Complete Mechanical-Electrical Modification in Tower	105,000
Initiate and Complete Fish Intake/Drain Stilling Basin Modification	55,000

Division: South Pacific District: Sacramento

Dry Creek (Warm Springs) Lake and Channel, California

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Complete Recreation Area Sanitation Facilities	30,000
Complete Fish Hatchery Expansion	550,000
Complete Fish Hatchery Emergency Water Supply	455,000
Engineering and Design	200,000
Supervision and Administration	300,000
Total	3,500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts in effect at the time of the passage of the Flood Control Act of 1962, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation Maintenance and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas for downstream channel improvements.	$ 120,000	
Pay all costs allocated to municipal and industrial water supply storage and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	$103,900,000	$ 460,000
Total Non-Federal First Cost	$104,020,000	$ 460,000

The non-Federal sponsor will repay its share of construction costs over the life of the project.
STATUS OF LOCAL COOPERATION: Assurances of local cooperation were provided by Sonoma County Water Agency (formerly Sonoma County Flood Control and Water Conservation District) Resolutions DR 00793-1 adopted 25 September 1961 and DR 4770-1 adopted 17 December 1962. On August 1974, the Board of Directors of the Sonoma County Water Agency adopted Resolution DR 45759 which acknowledged an enforceable obligation for repayment of construction costs associated with project optimization in accordance with the formula in the original water supply contract executed on 6 January 1965. The original contract was modified by agreement between the Department of the Army and the Sonoma County Water Agency on 1 October 1982. An Assurance Agreement for the downstream channel stabilization, with the Sonoma County Water Agency was signed in June 1988.

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COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $361,500,000 is an increase of $7,500,000 from the latest estimate ($354,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 1,018,000
Authorized Modifications	6,837,000
Post Contract Award and Other Estimating Adjustments	-355,000
Total	$ 7,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement was filed on 10 December 1973 and a Supplement Environmental Impact Statement was filed on 17 September 1976.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1964, and for construction in FY 1967.

Remaining recreation facilities are not scheduled pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance, consistent with projects for which recreation facilities are being constructed under the provisions of the Federal Water Project Recreation Act of 1965 (PL 89-72), as amended.

1058

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Fairfield Vicinity Streams, California (Continuing)

LOCATION: The project is located in, and in the vicinity of, the city of Fairfield and Suisun City, Solano County, California.

DESCRIPTION: The project modifies five streams in the vicinity of Fairfield, Solano County. The plan of improvement provides about 4.9 miles of channel improvements on Ledgewood, Laurel, and McCoy Creeks; diversion of three creeks (Pennsylvania Avenue Creek into Ledgewood Creek, Union Avenue Creek into Laurel Creek and Laurel Creek into McCoy Creek); and 3.7 miles of bicycle trails. The modified project incorporates channel improvements completed and/or partially completed by local interests.

AUTHORIZATION: Section 201 of the 1965 Flood Control Act (Authorized 1970), Further Continuing Appropriations Act for Fiscal Year 1986 and Supplemental Appropriations Act of 1987.

REMAINING BENEFIT-REMAINING COST RATIO: 1.2 to 1 at 8 1/8 percent.

TOTAL BENEFIT-COST RATIO: See OTHER INFORMATION.

INITIAL BENEFIT-COST RATIO: 1.13 to 1 at 8-1/8 percent (FY 1985)

BASIS OF BENEFIT-COST RATIO: Benefits are based on Design Memorandum No. 2. Supplement 1, approved in June 1986 at October 1985 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$ 13,800,000
Estimated non-Federal Cost		22,500,000
Cash Contributions	$ 290,000	
Other Costs	22,210,000	
Total Estimated Project Cost		$ 36,300,000

	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project		68	Sep 1992

1059

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 9,480,000	
Conference Allowance for FY 1990	2,945,000	
Allocation for FY 1990	1,575,000 1/	
Allocations through FY 1990	11,055,000	80
Allocation Requested for FY 1991	$ 2,160,000	96
Scheduled Balance to Complete After FY 1991	585,000	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects $284,000 assigned as savings and slippage, $30,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,056,000 reprogrammed from the project.

PHYSICAL DATA

Relocations:
- SPRR Bridge on Laurel Creek ($320,000)
- SPRR Bridge on Ledgewood Creek ($1,350,000)

Channel Improvements:
- Unlined Earth Channel - 3.6 miles
- Rock Lined Channel - 1.3 miles

Recreation Facilities:
- Bicycle Trails - 3.7 miles

Design Capacities:
- Ledgewood Creek - 1,310 c.f.s to 3,750 c.f.s
- Pennsylvania Ave Creek Diversion - 360 c.f.s
- Union Ave Creek Diversion - 180 c.f.s to 900 c.f.s
- Laurel Creek Diversion - 2,600 c.f.s to 3,700 c.f.s
- Laurel Creek Diversion Stub - 700 c.f.s
- McCoy Creek - 2,000 c.f.s to 3,900 c.f.s

1060

JUSTIFICATION: The project will provide flood protection to about 3,900 acres of land in and adjacent to the city of Fairfield that is now subject to frequent damaging flood inundations. The present value of improvements in the project flood plain is $310 million. Since 1940, Fairfield has been growing at a rate greatly exceeding that of Solano County, the State of California, or the United States. It is estimated that by 2037 the entire flood plain will be residential or other urban development. Future developments will compound the current flood problems. Under current conditions of development, repetition of the December 1955 flood, the maximum flood of record, would cause damages exceeding $2.6 million, all preventable by the project. The estimated average annual benefits, based on October 1985 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$2,240,000
Recreation	70,000
Total	$2,310,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Phase IV SPRR Bridge Relocation	$1,119,000
Continue Phase IV Ledgewood Creek Channel	450,000
Initiate and Complete Recreation Pedestrian Bridge	216,000
Engineering and Design	200,000
Supervision and Administration	175,000
Total	$2,160,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, modified by Public Law 100-71, the non-Federal sponsors must comply with the requirements listed below. (See OTHER INFORMATION.)

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Flood Control Sponsor		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 4,190,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	17,835,000 1/	
Bear all costs of operation, maintenance, and replacement of flood control facilities.		$ 43,000

1061

Recreation Sponsor

Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	475,000 2/	40,000
Total Non-Federal Costs	$22,500,000	$ 83,000

1/ Includes $4,611,000 credit under Section 117 of PL 99-190 for local sponsor prior channel construction work.
2/ Includes $80,000 for lands and $105,000 credit under Section 117 of PL 99-190 for local sponsor prior recreation construction work.

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: A written agreement satisfying the requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611), was executed on 3 June 1986 with the State of California. A Local Cooperation Agreement for recreation was also executed on 3 June 1986 with the City of Fairfield as sponsor. With enactment of Public Law 100-71 (11 July 1987), which directs that the project proceed under the provisions of Section 117, this agreement did not require modification to comply with the Water Resources Development Act of 1986. The current non-Federal cost estimate for flood control of $22,025,000 is an increase of $5,422,000 from the non-Federal cost estimate of $16,603,000 noted in the Local Cooperation Agreement. No cash contribution is currently required. The State of California is financially capable and willing to contribute the increased non-Federal share. The current non-Federal cost estimate for recreation of $475,000, which includes a cash contribution of $290,000, is an increase of $95,000 from the non-Federal cost estimate of $380,000 noted in the Local Cooperation Agreement, which included a cash contribution of $150,000. The non-Federal sponsor has indicated that it is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment. (See OTHER INFORMATION.)

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $13,800,000 is an increase of $400,000 from the latest estimate ($13,400,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 160,000
Authorized Modifications	-60,000
Post Contract Award and Other Estimating Adjustments	300,000
Total	$ 400,000

1062

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 5 April 1976. An Environmental Assessment of the modified project (from 200-year to 100-year level of protection) was filed on 15 December 1985.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and allocated in FY 1974, and funds to initiate construction were appropriated in FY 1985.

Section 117 of Public Law 99-190 provided credit to non-Federal interests for prior non-Federal costs compatible with the project, against the required cash contribution for flood control. With passage of the Water Resources Development Act of 1986 (Public Law 99-662), as subsequent legislation, this Section's provisions were voided. Additional subsequent legislation, Public Law 100-71, authorized the project to proceed under the provisions of Section 117 of Public Law 99-190. Section 117 of the Further Continuing Appropriations, 1985 Act for Fiscal Year 1986 (Public Law 99-190), December 19, 1985 contained the following authorization language: "The Secretary shall include as part of the non-Federal contribution of the project for flood control, Fairfield Vicinity Streams, California, authorized in accordance with Section 201 of the Flood Control Act of 1965, the cost of any work carried out by non-Federal interests on the project after December 31, 1973, and before the date of the enactment of this joint resolution, if the Secretary determines such work is reasonably compatible with the project. Costs and benefits resulting from such work shall continue to be included for purposes of determining the economic feasibility of the project."

The total project benefit-cost ratio would be 0.77 to 1, based on benefits computed in 1985 and current costs discounted to 1985 price levels. While this ratio is less than unity, development in the project area has increased beyond projections used in the 1985 benefit analysis. Current project benefits would be substantially greater in an analysis utilizing actual development.

1063

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Guadalupe River, California (Continuing)

LOCATION: The project is located in San Jose, Santa Clara County, California .

DESCRIPTION: The project extends approximately 2.5 miles from Interstate Highway 280 to Interstate Highway 880 in downtown San Jose, California and consists of channel modifications with provisions for fish and wildlife mitigation. Project features include underground concrete conduit bypass, concrete lined channel, trapezoidal channel lined with riprap, one sided widened channel, and mitigation plantings on the widened channel.

AUTHORIZATION: Water Resources Development Act of 1986 and Energy and Water Development Appropriations Act for 1990.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.09 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.09 to 1 at 8-5/8 percent (FY 1990)

BASIS OF BENEFIT-COST RATIO: Benefits are from Draft General Design Memorandum dated September 1989 at October 1989 price levels.

1064

SUMMARIZED FINANCIAL DATA		
Estimated Federal Cost		$52,300,000
Estimated Non-Federal Cost		$52,300,000
Cash Contribution	$ 5,230,000	
Other Costs	47,040,000	
Total Estimated Project Cost		$104,600,000

STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	Not Started	Sep 1994

PHYSICAL DATA	
Earth trapezoidal channel	9,129 Feet
Open rectangular concrete-lined channel	2,495 Feet
bypass channel	2,023 Feet
Stone Protection	8,013 Feet

SUMMARIZED FINANCIAL DATA		ACCUM. PCT. OF EST. FED. COST	
Allocations to 30 September 1989	$ 2,050,000		
Conference Allowance for FY 1990	1,150,000		
Allocation for FY 1990	500,000 1/		1/ Reflects reduction of $39,000 assigned as savings and slippage, $30,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $581,000 reprogrammed from the project.
Allocations through FY 1990	2,550,000	5	
Allocation Requested for FY 1991	9,000,000	22	
Scheduled Balance to Complete After FY 1991	40,750,000		
Unscheduled Balance to Complete After FY 1991	0		

JUSTIFICATION: The Guadalupe River drains an area of about 160 square miles and its 100-year flood plain encompasses approximately 7,000 acres, including downtown San Jose and consists of both residential and light industrial development. The 1988 population for the city of San Jose was estimated at 732,800. Flood producing storms have occurred thirteen times since 1945, the most recent in February 1986. The storm of record occurred in December 1955, inundating 8,300 acres and causing approximately $1.3 million in damages in the Guadalupe River drainage basin. If such an event were to occur today with current prices and conditions, damages could be approximately $16 million. The project will provide 100-year flood protection to downtown San Jose, including approximately 600 commercial business and 1,500 private residences, 4 major traffic arteries, and the San Jose International Airport. Average annual benefits, all flood control are estimated at $9,330,000 at October 1989 price levels.

FISCAL YEAR 1991: The requested amount will be used as follows:

Initiate Channel Construction from Hedding Street to SPRR	$ 1,600,000
Initiate and Complete Channel Construction from Hwy 880 to Hedding Street	1,000,000
Continue Area Real Estate Coordination	20,000
Engineering and Design	220,000
Supervision and Administration	213,000
Section 104 Reimbursement	5,947,000
Total	$ 9,000,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas, which are partially offset by a credit allowed ($28,391,000) for prior work (Section 104 of the WRDA 1986).	$46,940,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	15,060,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	5,230,000	249,690
Federal reimbursement to non-Federal sponsor for one-half of the non-Federal costs allocated to flood control in excess of Federal costs.	-14,930,000	
Total Non-Federal Costs	$52,300,000	$249,690

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: The Santa Clara Valley Water District is the local sponsor for this project and has expressed in a letter dated 2 June 1989 their intent to provide all needed cost sharing funds. The local cost sharing agreement is scheduled to be executed in June 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $52,300,000 is an increase of $30,500,000 from the latest estimate ($21,800,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,103,000
Price Escalation on Real Estate	13,450,000
Authorized Modifications (Sec 104 Credits)	15,947,000
Total	$30,500,000

1066

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed in October 1986. A Supplemental Environmental Impact Statement is required to address changes in project design and is scheduled to be filed in May 1990.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1986 and funds to initiate construction were appropriated in FY 1990.

Local interests hope to incorporate this project into a larger regional plan being undertaken by the San Jose Redevelopment Agency. The Redevelopment Agency desires to have some of their project features constructed by the Corps during construction. Locals have been informed that modifications to the Federal plan could be included at 100% local cost and risk. Local environmental documentation must be completed prior to incorporating these features into the project construction.

The Energy and Water Development Appropriations Act, 1990 directed the Secretary to construct the project notwithstanding Section 902 of the Water Resource Development Act 1986.

1067

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Merced County Streams, California (Continuing)

LOCATION: The project is located in Merced County in the vicinity of the city of Merced, California, on the streams draining from the Mariposa County foothills of the Sierra Nevada into Merced County. The streams lie easterly of, and drain into, the San Joaquin River between Chowchilla River on the south and Merced River on the north. Castle Dam and Lake, the first element of the project to be constructed, will be located on Canal Creek, about eight miles northwest of Merced.

DESCRIPTION: The project consists of increasing the flood control storage in the existing Bear Reservoir from 7,700 acre feet to 32,500 acre-feet, construction of a 40 foot high earthfill dam at the Castle Site with 6,400 acre-feet of flood control storage, and construction of a 78 foot high earthfill dam at the Haystack Site with 5,300 acre-feet of flood control storage. There will also be 33.4 miles of levee construction and channel modifications on Bear, Fahrens, and Black Rascal Creeks and a water management system on 2,859 acres for fish and wildlife mitigation.

AUTHORIZATION: 1970 Flood Control Act.

REMAINING BENEFIT - REMAINING COST RATIO: 1.23 to 1 at 8-1/8 percent.

TOTAL BENEFIT-COST RATIO: 1.09 to 1 at 8-1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.16 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT-COST RATIO: Benefits are based on the Phase II General Design Memorandum approved in June 1982 at 1981 price levels.

1068

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$70,500,000		Castle Dam and Lake	Not Started	Sep 1991
Scheduled Construction	$12,802,000			Remaining Project	Not Started	Unsch
Unscheduled Construction	57,698,000			Entire Project	Not Started	Unsch
Estimated Non-Federal Cost		$ 30,400,000				
Scheduled Construction	$ 3,000,000					
Cash Contribution	$ 470,000					
Other Costs	2,530,000					
Estimated Non-Federal Cost		$ 27,400,000				
Unscheduled Construction	$27,400,000					
Cash Contribution	$ 4,720,000					
Other Costs	22,680,000					
Total Estimated Scheduled Construction Cost		$ 15,802,000				
Total Estimated Unscheduled Construction Cost		85,098,000				
Total Estimated Project Cost		100,900,000				
Allocations to 30 September 1989		$ 8,902,000				
Conference Allowance for FY 1990		1,100,000				
Allocation for FY 1990		1,400,000 1/				
Allocations through FY 1990		10,302,000	15			
Allocation Requested for FY 1991		1,900,000	17			
Scheduled Balance to Complete After FY 1991		600,000				
Unscheduled Balance to Complete After FY 1991		57,698,000				

1/ Reflects reduction of $106,000 assigned as savings and slippage, $11,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $417,000 reprogrammed to the project.

1069

PHYSICAL DATA

Castle Dam and Lake
Dam: Type - Impervious Core
Height - 40 feet
Length - 2,050 feet

Dikes: Type - Homogeneous earthfill Length - 1,050 feet

Spillway: Type - Ungated, concrete low ogee spillway
Crest width - 180 feet
Capacity - 3,900 c.f.s.

Lake Capacity: Flood Control storage - 6,400 ac-ft

Lands and Damages: Acres - 1,219
Type - grazing and orchards
Improvements - Rural dwellings and ranch buildings

Bear Dam and Lake
Dam: Type - Impervious Core
Height - 150 feet
Length - 3,100 feet

Spillway: Type - Ungated ogee converging to spillway with stilling basin
Crest width - 185 feet converging to 120 ft
Capacity - 27,000 c.f.s.

Lake Capacity: Flood Control storage - 32,500 ac-ft

Lands and Damages: Acres - 310
Type - grazing
Improvements - None

Bear Creek Stream Group
Channels: 33.4 miles
Levees:
Height - 3 to 10 feet
Length - 58 miles

Haystack Dam and Lake
Dam: Type - Homogeneous Fill
Height - 78 feet
Length - 2,300 feet

Spillway: Type - Ungated, concrete, low ogee spillway
Crest width - 200 feet
Capacity - 4,600 c.f.s.

Lake Capacity: Flood Control storage - 5,300 ac-ft

Lands and Damages: Acres - 682
Type - grazing
Improvements - None

Fish & Wildlife Mitigation
Acres - 2,859

1070

JUSTIFICATION: The project will provide flood protection to residential, commercial, and agricultural lands within and adjacent to the city of Merced and Castle Air Force Base. The population of Merced County was 90,440 in 1960, has increased to 168,600, and is expected to reach 238,200 by 2000. Rapid urbanization is increasing the severity of serious flooding problems that exist along the streams draining from the Sierra Nevada into Merced County. The 1989 value of physical improvements in the 73,700 acre area protected by the project is estimated at $2.5 billion. During the January-February 1969 floods, about 24,000 acres were flooded, with damages of $940,000 reported. With recurrence of that flood under present conditions, damages would amount to about $4.0 million. The average annual benefits at 1981 price levels are as follows:

Annual Benefits	Amount
Flood Control	$7,180,000
General Recreation	225,000
Area Redevelopment	625,000
Total	$8,030,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate and Complete Castle Dam Boundary Fencing	$ 130,000
Complete Castle Dam Project Roads	65,000
Complete Castle Main Dam and Appurtenances	890,000
Engineering and Design for Castle Dam	35,000
Engineering and Design for Remaining Project	415,000
Supervision and Administration	365,000
Total	$ 1,900,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation Castle Dam	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$ 2,030,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	500,000	
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	470,000	47,000
Total Castle Non-Federal Costs	$ 3,000,000	$47,000

1071

Requirements of Local Cooperation
Remaining Project

Provide lands, easements, rights-of-way, and dredged macerial disposal areas.	$12,220,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	10,460,000	
Pay one-half of the separable cost allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	230,000 1/	$ 43,000
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	4,490,000	500,000
Total Remaining Project Non-Federal Costs	$27,400,000	$543,000
Total Non-Federal Costs	$30,400,000	$590,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Includes $40,000 for lands.

STATUS OF LOCAL COOPERATION: The California Reclamation Board (Flood Control) and the City of Merced (Recreation) are the local sponsors of the authorized project. The Reclamation Board will serve as the sole sponsor for the Castle Dam unit. Merced County will provide a percentage of the non-Federal costs to the Reclamation Board, as specified by applicable State Water Code. On 27 June 1986 a Local Cooperation Agreement for Castle Dam unit was signed in compliance with the requirements of the Supplemental Appropriations Act of 1985. State of California legislation (AB3369) was enacted on 14 September 1986 which enabled the Reclamation Board to use appropriated funds for acquisition of project lands, easements, rights-of-way and relocations and to loan funds to Merced County to pay their portion of these requirements in accordance with cost sharing and financing concepts subsequently reflected in the Water Resources Development Act of 1986. A new Local Cooperation Agreement for Castle Dam in compliance with the Water Resources Development Act of 1986 was signed by the Assistant Secretary of the Army 30 November 1988. The California Reclamation Board and the Merced County Board of Supervisors have indicated support for the balance of the project through Letters of Intent dated 15 May 1989 and 2 May 1989, respectively. The current non-Federal cost estimate for Castle Dam of $3,000,000, which includes a cash contribution of $470,000, is an increase of $630,000 due to an increase in engineering and design, supervision and administration, lands and relocation costs from the non-Federal cost estimate of $2,370,000 noted in the Local Cooperation Agreement, which included a cash contribution of $430,000. The local sponsor is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

1072

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $70,500,000 is an increase of $4,900,000 from the latest estimate ($65,600,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 2,215,000
Post Contract Award and Other Estimating Adjustments	2,685,000
Total	$ 4,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 25 September 1981.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1973 and funds to initiate construction were appropriated in the FY 1985 Supplemental Appropriations Act.

1073

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Pajaro River, California (Continuing Construction)

LOCATION: The project is located in the Uvas-Carnadero and Llagas Creeks watersheds of the upper Pajaro River Basin in south Santa Clara County in the vicinity of the city of Gilroy about 75 miles south of San Francisco, California.

DESCRIPTION: The project consists of a two mile long levee (maximum height 10 feet) along the north side of Uvas Creek from about 2,000 feet downstream of Thomas Road to about 3,500 feet upstream of Miller Avenue. Included are a 1.8 mile bikeway and a 1.6 mile hiking trail.

AUTHORIZATION: 1944 Flood Control Act.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project was physically completed in May 1989.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: 2.2 to 1 at 8-3/8 percent (FY 1984)

BASIS OF BENEFIT-COST RATIO: Benefits are from the General Design Memorandum dated November 1984 at October 1985 price levels.

1074

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1989)	PERCENT COMPLETE	COMPLETION SCHEDULE
			Entire Project	100	May 1989 1/
Estimated Federal Cost		$ 7,395,000			
Estimated Non-Federal Cost		7,395,000			
Cash Contribution	$ 795,000				
Other Costs	12,828,000				
Federal Reimbursement	-6,228,000				
Total Estimated Project Cost		$14,790,000			

1/ Remaining requirement is Federal reimbursement to the non-Federal sponsor.

Division: South Pacific

District: Sacramento

29 JAN 1990

Pajaro River, California

SO

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED COST
Allocations to 30 September 1989	$ 5,395,000	
Conference Allowance for FY 1990	0	
Allocation for FY 1990	0	
Allocations through FY 1990	5,395,000	73
Allocation Requested for FY 1991	$ 2,000,000 1/	100
Scheduled Balance to Complete After FY 1991	0	
Unscheduled Balance to Complete After FY 1991	0	

PHYSICAL DATA

Levee:
Height: 3 to 10 feet
Length: 2.0 miles

Recreation:
Biking Trail: 1.8 miles
Hiking Trail: 1.6 miles

1/ Remaining requirement is Federal reimbursement to the non-Federal sponsor.

JUSTIFICATION: The Uvas-Carnadaro Creek originates on Loma Prieta Peak in the Santa Cruz Mountains and flows generally southeast into the Pajaro River. The drainage area is approximately 90 square miles, including the city of Gilroy. The project will provide flood protection to about 4,300 acres of land in the city of Gilroy that is now subject to frequent and damaging floods. The present value of improvements in the project flood plain is $310 million. Since 1960, the population of Gilroy has increased almost four fold, from 7,300 to 28,850 in 1988 and is projected to increase to 64,300 by the year 2033. The economy of the area is largely devoted to agriculture, food processing, cattle, and some light industrial/commercial activities. Since 1937, five significant damaging floods have occurred, including the flood of record (December 1955) which produced a peak discharge of 10,300 cubic feet per second. Uvas Creek again overtopped levees on 17 February 1986 forcing evacuation of over 250 homes, five commercial activities and a migrant labor camp. Damages were estimated at $2.2 million. Peak flows approached 10,000 c.f.s. in the area flooded. This project is deigned to pass 18,800 c.f.s.. A breakdown of average annual benefits prepared at October 1984 price levels for the General Design Memorandum dated November 1984 follows:

Annual Benefits	Amount
Flood Control	$1,058,000
Recreation	74,000
Total	$1,132,000

1075

Division: South Pacific

District: Sacramento

29 JAN 1990

Pajaro River, California

91

FISCAL YEAR 1991: The requested amount of $2,000,000 will be used entirely for final reimbursement to the non-Federal sponsor for one-half of the non-Federal costs allocated to flood control in excess of Federal Costs.

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of FY 1986, the non-Federal sponsor must comply with requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 8,100,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,728,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation of facilities.	61,000	$14,175
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance and replacement of flood control facilities.	734,000	20,985
Federal reimbursement to non-Federal sponsor for one-half of the non-Federal costs allocated to flood control in excess of Federal costs.	-6,228,000	
Total Non-Federal Costs	$ 7,395,000	$35,160

The non-Federal Sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Local cooperation agreements for flood control and recreation were executed with the Santa Clara Valley Water District (25 June 1987) and the City of Gilroy (27 July 1987), respectively.

1076

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $7,395,000 is an increase of $2,000,000 from the latest estimate ($5,395,000) presented to Congress (FY 1989).

Item	Amount
Post Contract Award and increased costs for flowage easements	$2,000,000
Total	$2,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 3 November 1982.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1979 and to initiate construction in FY 1987.

The non-Federal sponsor determined that the flowage area could not be kept unobstructed by zoning restrictions, as originally planned, and that flowage easements would have to be purchased. Since non-Federal costs allocated to flood control already exceed Federal costs, one-half of the additional costs for the flowage easements will be reimbursed by the Corps. Subsequent to completion of the project audits, and determination of final project costs, the local sponsor will be reimbursed for one-half of the non-Federal costs allocated to flood control in excess of Federal construction costs. The total reimbursement is currently estimated to be $6,228,000 and will be made in FY 1990 and FY 1991.

1077

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Redbank and Fancher Creeks, California (Continuing)

LOCATION: The project is located northeast and adjacent to the Fresno-Clovis Metropolitan Area in Fresno County, about 170 miles south of Sacramento, California.

DESCRIPTION: The plan of improvement includes construction of flood detention basins on Redbank Creek, Pup Creek, and Alluvial Drain; construction of a single purpose flood control reservoir on Fancher Creek; and enlargement of the existing Big Dry Creek Dam to provide increased flood protection.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.4 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.5 to 1 at 8-5/8 percent.

INITIAL BENEFIT - COST RATIO: 1.6 to 1 at 8-5/8 percent (FY 1987)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation contained in the 1986 General Design Memorandum approved in June 1986 at 1985 price levels.

1078

SUMMARIZED FINANCIAL DATA		STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	$50,400,000	Entire Project	10	Sep 1993
Estimated Non-Federal Cost	$16,800,000			
Cash Contribution $ 5,138,000				
Other Costs 11,662,000				
Total Estimated Project Cost	67,200,000			
Allocations to 30 September 1989	$ 6,688,000			
Conference Allowance for FY 1990	11,300,000			

Division: South Pacific

District: Sacramento

29 JAN 1990

Redbank and Fancher Creeks, California

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocation for FY 1990	12,300,000 1/	
Allocations through FY 1990	18,988,000	38
Allocation Requested for FY 1991	$ 7,500,000	53
Scheduled Balance to Complete After FY 1991	23,912,000	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $1,090,000 assigned as savings and slippage, $116,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,206,000 reprogrammed to the project.

PHYSICAL DATA

Big Dry Creek Dam
Dam: Type - Random Fill
Max. Dam Height - 45.0 feet
Length - 4.8 miles

Spillway: Type - Ungated, concrete ogee spillway
Crest width - 550 feet
Capacity - 33,400 c.f.s.

Lake Capacity: Flood Control storage (gross pool) - 31,800 ac-ft

Outlet Works:
Big Dry Creek
Capacity 150 c.f.s.
Little Dry Creek
Capacity 700 c.f.s.

Fancher Creek Dam
Dam: Type - Impervious Core and Random Fill
Max. Dam Height - 44.5 feet
Length - 2.9 miles

Spillway and Outlet Works:
Type - Combined ungated ogee spillway with ungated outlet works
Crest width - 55 feet
Capacity - 7,000 c.f.s.

Lake Capacity: Flood Control
Storage (gross pool) - 9,712 ac-ft

Redbank Creek Detention Basin
Basin: Type - Combination excavated and embankment contained
Max. Basin Depth - 7.1 feet
Max. Emb. Height - 3.0 feet

Basin Capacity: Flood Control
Storage - 940 ac-ft

Control Structure:
Buoyancy activated gates
Maximum outflow 204 c.f.s.

Pup Creek Detention Basin
Basin: Type - Combination excavated and embankment contained
Max. Basin Depth - 11.0 feet
Max. Emb. Height - 3.0 feet

Basin Capacity: Flood Control
Storage - 510 ac-ft

Outlet Works: Ungated
Maximum outflow at
Gross pool - 25 c.f.s.

Alluvial Drain Detention Basin
Basin: Type - Completely excavated
Max. Basin Depth - 8.5 feet

Basin Capacity: Flood Control
Storage - 385 ac-ft

Outlet Works: Ungated
Maximum outflow at
Gross Pool - 25 c.f.s.

1079

Division: South Pacific

District: Sacramento

29 JAN 1990

Redbank and Fancher Creeks, California

JUSTIFICATION: Construction of this project will provide protection to lands and improvements in the Fresno-Clovis Area with a 1988 population of approximately 354,000. The present value of lands and improvements in the 37,900 acre overflow area subject to flood damages is about $3.9 billion. The flood of record occurred in 1969, inundating over 14,500 acres of agricultural, residential, commercial, industrial, and public properties and caused about $4.7 million in damages. A recurrence of that flood under current conditions would cause damages of about $20.5 million. Average annual benefits, all flood control, are estimated at $8,480,000, based on 1 October 1985 prices.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Continue Fancher Creek Dam	$5,560,000
Complete Redbank Creek Detention Basin	740,000
Engineering and Design	930,000
Supervision and Administration	270,000
Total	$7,500,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$10,980,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	682,000	
Pay 7 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities which is partially offset by a credit allowed ($32,000) for prior work (Section 104 of the 1986 WRDA).	5,138,000	$238,000
Total Non-Federal Costs	$16,800,000	$238,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

Division: South Pacific

District: Sacramento

29 JAN 1990

Redbank and Fancher Creeks, California

STATUS OF LOCAL COOPERATION: The State of California in 1985 passed legislation to reimburse the Fresno Metropolitan Flood Control District for 75 percent of lands and easements and 90 percent of relocations cost. On 1 August 1987, the Local Cooperation Agreement was signed in compliance with the requirements of the Water Resources Development Act of 1986. Required cash contributions totaling $460,000 have been furnished to the Corps through Fiscal Year 1989 to cover local interest costs. An escrow agreement with the local sponsor was executed on 7 August 1989. The current non-Federal cost estimate of $16,800,000, which includes a cash contribution of $5,138,000, is an increase of $400,000 from the non-Federal cost estimate of $16,400,000 noted in the Local Cooperation Agreement, which included a cash contribution of $4,580,000. The current cash contribution reflects a credit of $32,000 for prior work (Section 104, WRDA 1986). The local sponsor is financially capable and willing to contribute the increased non-Federal share. Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $50,400,000 is a decrease of $1,500,000 from the latest estimate ($51,900,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$-1,030,000
Design Changes	765,000
Post Contract Award and Other Estimating Adjustments	-1,235,000
Total	$-1,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 7 November 1980. As the result of an expression of public concern about the impacts of Redbank Creek Detention Basin could have on groundwater conditions at the Thompson Howard Toxic waste site about a quarter mile from the project, an Environmental Assessment was completed and a Finding of No Significant Impact (FONSI) was signed 11 May 1989, However, a monitoring program will be conducted to verify that groundwater conditions are not impacted at the toxic waste site.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1982 and funds to initiate construction were appropriated in FY 1987.

In response to authorization language, a study was initiated in October 1988 to determine if the project could be used to enhance groundwater. The study is underway and is scheduled to be completed in February 1990.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sacramento River Bank Protection Project, California (Continuing)

LOCATION: The project is located in north-central California, along the Sacramento River and its principal tributaries from RM 0.0 at Collinsville to Chico Landing at RM 194. It is within the limits of the existing Sacramento River Flood Control Project levees and includes Butte Basin, Cache Slough, and the Sacramento-San Joaquin Delta sloughs.

DESCRIPTION: The project provides a long-range program of bank protection to protect the levees within the limits of the Sacramento River Flood Control Project from erosion. It prevents undermining of levee sections and provides fish and wildlife mitigation and enhancement features. Some recreational facilities have been provided along the river.

AUTHORIZATION: 1960 Flood Control Act; 1974 River Basin Monetary Authorization Act; Further Continuing Appropriations Act, 1983; and Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because monetary benefits have not been quantified. In the reevaluation of project benefits for the Second Phase report, it was determined impractical to assign a monetary value to the benefits which would result from the removal of threats of eventual levee breaks when there are hundreds of vulnerable locations in various states of deterioration. Therefore, a project benefit-cost ratio was not included in the report submitted to the Congress on the advisability for remaining work.

TOTAL BENEFIT-COST RATIO: Not Applicable

INITIAL BENEFIT-COST RATIO: Not Reported

BASIS OF BENEFIT-COST RATIO: Not Applicable

SUMMARIZED FINANCIAL DATA

Estimated Federal Cost		$ 98,600,000
Estimated Non-Federal Cost		42,200,000
Cash Contribution	$24,660,000	
Other Costs	17,540,000	
Total Estimated Project Cost		$140,800,000

STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	90	Sep 1994

PHYSICAL DATA
Bank Protection: 835,000 lineal feet
First Phase - 430,000 lineal feet
Second Phase - 405,000 lineal feet

Division: South Pacific

District: Sacramento

30 JAN 1990

Sacramento River Bank Protection Project, California

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 75,115,000	
Conference Allowance for FY 1990	$ 7,500,000	
Allocation for FY 1990	3,900,000 1/	
Allocations through FY 1990	79,015,000	80
Allocation Requested for FY 1991	$ 5,000,000	85
Scheduled Balance to Complete After FY 1991	14,585,000	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $723,000 assigned as savings and slippage, $77,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,800,000 reprogrammed from the project.

JUSTIFICATION: The Sacramento River levee system was initiated as a purely local project and in many cases the levees were constructed close to the river banks without a protective berm. The levee system, which was adopted as the Sacramento River Flood Control Project in 1917, has been modified and expanded several times since that date but no major change in the basic levee alignment has been made since the original conception of the project. Bank protection is necessary to preserve the Sacramento River Flood Control Project and insure that it will continue to furnish the designed degree of protection. The levees are continuously threatened by erosion, and unless corrective measures are taken levee failures may occur with resultant catastrophic damage and possible loss of many lives. Recent flood events which occurred in February 1986 greatly emphasize these problems. Several levees located along the Sacramento River were subjected to an extensive amount of erosion due to the extremely high river flows. The area protected by the levees comprises over one million acres in which about 50 communities are located; value of lands and improvements (1989) to be protected is about $26.3 billion and about 1,774,000 people live within the flood plain. The levee system enables the use of the flood plain for the benefit of the state and nation. The extremely fertile flood plain lands produce over 8 percent of the total agricultural production of the state and 18 percent of the rice production of the nation. The Sacramento River Bank Protection Project provides a long-range program of bank protection to protect the levees where serious erosion is occurring and to prevent erosion from undermining additional levee sections in the future. In addition to assuring urgently needed flood protection, the project provides recreation facilities consisting of boat-launching facilities, campgrounds, and picnic areas needed along the river to meet a rapidly increasing public demand. Since the initial bank protection contract was let in June 1963, about 750,000 lineal feet of bank protection has been provided. About 85,000 lineal feet of bank protection remains to be placed on this project, and the local sponsor supports the addition of a third phase, which will require Congressional authorization.

FISCAL YEAR 1991: The requested amount will be applied as follows:

Separable Element 41 (RM 20-60)	
Initiate Cache Slough Mitigation	$ 50,000
Initiate Cache Slough Flood Mitigation	50,000
Continue Feather River Mitigation	30,000
Separable Element 42 (20-146)	
Initiate Bank Protection RM 20-60 and Sloughs	$1,410,000
Initiate Bank Protection Sacramento to Colusa RM 60-146	1,330,000
Initiate Mitigation Sacramento to Colusa RM 60-146	110,000
Separable Element 43	
Initiate Bank Protection, Tisdale Weir to Moulton Weir RM 129-169	250,000
Engineering and Design	
Separable Element 40	240,000
Separable Element 41	275,000
Separable Element 42	165,000
Separable Element 43	470,000
First Phase Mitigation	10,000
Third Phase	215,000
Supervision and Administration	395,000
Total	$5,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

1084

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 10,675,000	
Modify or relocate buildings, utilities, roads, bridges, and other facilities, where necessary in the construction of the project.	6,865,000	
Pay 16.9 percent of the costs allocated to flood control to bring the local share of project costs to one-third for work initiated prior to 30 April 1986, and bear all costs of operation, maintenance, and replacement of flood control facilities.	13,940,000	$695,000
Pay 18 percent of the costs allocated to flood control to bring the local share of project costs to twenty five percent for work initiated after 30 April 1986 and bear all costs of operation, maintenance and replacement of flood control facilities.	10,720,000	210,000
Total Non-Federal Costs	$ 42,200,000	$905,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: Chapter 2188, Statutes of the State of California, approved by the Governor on 21 July 1961, established the State Reclamation Board as the agency to meet the requirements of local cooperation for the project. Assurances of local cooperation were accepted from the Board 5 February 1963. As of 1 June 1989, the State has expended $32,480,000 for construction of the project. The Reclamation Board signed a local cooperation agreement satisfying the requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611) for the remaining Second Phase work in May 1984. In accordance with provisions of the Water Resources Development Act of 1986 for separable project elements initiated after 30 April 1986, new local cooperation agreements were executed for separable element 41 on 15 August 1988 and for separable elements 38B, 40, and 42 on 6 December 1988. The LCA for the First Phase Mitigation is being finalized and will be executed prior to construction. Execution of an LCA for separable element 43, the last separable element in the Second Phase, is scheduled in April 1990. The current non-Federal cost estimate of $42,200,000 is an increase of $800,000 from the estimate last presented to Congress of $41,400,000 for the entire project. The cash contribution of $24,660,000, included in the estimate, is an increase of $900,000 over the last estimate of $23,760,000 and is due to revised cost estimates from the locals for lands, easements, rights-of-way and relocations, addition of Third Phase Engineering and Design and a revised cost estimate for First Phase Mitigation. The State of California acknowledges the escalating costs and continues to be financially able and willing to participate in the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $98,600,000 is an increase of $2,100,000 from the latest estimate ($96,500,000) submitted to Congress (FY 1989). This change includes the following items.

Item	Amount
Post Contract Award and Other Estimating Adjustments	$ 520,000
Authorized Modifications	1,500,000
Schedule Changes	80,000
Total	$ 2,100,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final Environmental Impact Statement (EIS) was filed on 15 June 1973. A Supplemental Environmental Impact Statement for the Second Phase was filed in February 1989. A final EIS for additional work in Butte Basin, and an update submitted as Supplement 4, were signed in June 1988. Currently, an Environmental Assessment/Site Specific Report to meet both Federal and State of California requirements is approved prior to construction of each bank protection contract.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1962, and for construction in FY 1963. Construction of First Phase was completed in November 1974. Authority to proceed with additional bank protection works, Second Phase, was provided by Section 202, River Basin Monetary Authorization Act of 1974, Public Law 93-251.

The Further Continuing Appropriations Act, 1983 extended the limits of the project to include bank protection along the Sacramento River to the upstream ends of the project levees to Chico Landing (Butte Basin area).

The Water Resources Development Act of 1986 modified the First Phase of the project to include acquisition of lands for establishment and maintenance of wildlife habitat at a total cost of $1,410,000. Inflated through construction the current estimate is $2,080,000. Cost sharing for the mitigation features will be the same as it was for the first phase of construction; the local sponsor will provide lands, easements, rights-of-way, and dredged material disposal areas, and make a required cash contribution to bring the local share of the mitigation features cost to 37 percent. A Design Letter Report for First Phase Mitigation was approved in May 1989. The U.S. Fish and Wildlife Service, by letter dated 7 November 1985, issued a Biological Opinion which expressed concern that bank protection work along the Sacramento River from Chico Landing to Red Bluff and in the Butte Basin area would endanger the continued existence of the threatened valley elderberry longhorn beetle. Following a review by the U.S. Fish and Wildlife Service, a revised opinion for the Butte Basin area was issued on 19 May 1987, which opinion permitted work to proceed as proposed by the Corps at three sites using rock revetment. Work began in July 1988. Permeable fence dikes were studied but were not selected because of high maintenance costs. Construction of rock groins at the RM 192 site is scheduled for award in August 1990. The final Butte

Basin site at RM 188.8, is scheduled for award in May 1993. As a reasonable and prudent alternative of the Revised Biological Opinion, a two-year pilot study of allowable vegetation in rock was initiated in April 1989. The pilot study will be used to determine study techniques and if a full scale two year effort is advisable.

Since the February 1986 flood, the Sacramento River System has experienced below normal precipitation and flood flows. This has lead to a lower rate of erosion and a lowered need for expedited bank protection work. Further, the recent State and Federal endangered species listing of winter run salmon, bank swallows by the State, and other State and Federal endangered species (Swainsons Hawk etc.) makes it prudent to reschedule bank protection placement. Thus, the project is now scheduled for completion in FY 1994.

The California Reclamation Board, by letter dated 11 May 1984, requested initiation of a third phase of bank protection. The Board reiterated the critical need for a third phase by letter of 1 September 1988 and stated its willingness and ability to cost-share this phase of the project in accordance with the provisions of the Water Resources Development Act of 1986. Congressional authorization is required to extend the limits of bank protection beyond the current 835,000 lineal feet. A report was initiated in FY 1988 and is scheduled for completion in the second quarter of FY 1992. Subject to authorization, the third phase could be initiated in FY 1995.

27-138 O—90—35

1087

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sacramento River Flood Control Project, California (Continuing)

LOCATION: The project is located on the Sacramento River and the lower reaches of its principal tributaries in north-central California. The project extends from Collinsville near the mouth of the Sacramento River upstream to Ord Bend, a distance of 184 miles.

DESCRIPTION: The project comprises a comprehensive system of levees, overflow weirs, drainage pumping plants and flood bypass channels together with channel clearing, rectification, snagging and bank protection. Some of the facilities were locally constructed, later upgraded, and incorporated into the project, while others were built after project authorization. Maintenance and operation of the facilities after completion is the responsibility of local interests.

AUTHORIZATION: 1917, 1928, and 1941 Flood Control Acts; 1937 River and Harbor Act; Water Resources Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is essentially completed, except for remedial work.

TOTAL BENEFIT-COST RATIO: Not Applicable

INITIAL BENEFIT-COST RATIO: No initial benefit-cost ratio was computed for the original project as benefits were estimated to be far greater than costs.

BASIS OF BENEFIT-COST RATIO: Not Applicable

SUMMARIZED FINANCIAL DATA
ORIGINAL PROJECT

Actual Federal Cost		$ 68,925,000
Actual Non-Federal Cost		95,000,000
Cash Contribution	$ 4,950,000	
Other Costs	90,050,000	
Total Original Project Cost		$163,925,000

STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Original Project completed prior to 30 September 1981	100	
Remedial Work		
Cache Sl/Yolo Bypass (Unit 109)	94	Sep 1990
Coulsa Basin Drain (Unit 132) and Knights Landing Ridge Cut (Unit 127)	Not Started	Unsch
Entire Project	94	Unsch

Division: South Pacific District: Sacramento

Sacramento River Flood Control Project, California

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

-REMEDIAL WORK-

Cache Slough/Yolo Bypass (Unit 109)		
Estimated Federal Cost		$ 5,250,000
Estimated Non-Federal Cost		810,000
Cash Contribution	$ 0	
Other Costs	810,000	
Total Estimated Scheduled Construction Costs		$ 6,060,000
Total Estimated Unscheduled Construction Costs		0
Total Cache Slough/Yolo Bypass (Unit 109)		6,060,000
Colusa Basin Drain (Unit 132) and Knights Landing Ridge Cut (Unit 127)		
Estimated Federal Cost		$ 6,040,000
Scheduled Construction	$1,190,000	
Unscheduled Construction	4,850,000	
Estimated Non-Federal Cost		$ 2,020,000
Scheduled Construction	$ 0	
Unscheduled Construction	2,020,000	
Cash Contribution	1,150,000	
Other Costs	870,000	
Total Estimated Scheduled Construction Costs		$ 1,190,000
Total Estimated Unscheduled Construction Costs		6,870,000
Total Colusa Basin Drain (Unit 132 and Knights Landing Ridge Cut (Unit 127)		8,060,000

1089

30 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

Marysville/Yuba City Area (E&D Only)

Estimated Federal Cost	$ 2,000,000	
Estimated Non-Federal Cost	$ 0	
Total Estimated Scheduled Construction Costs		$ 2,000,000
Total Estimated Unscheduled Construction Costs		0
Total Marysville/Yuba City Area (E&D Only)		2,000,000

-REMEDIAL WORK SUMMARY-

			ACCUM. PCT. OF FED. COST
Estimated Federal Cost		$ 13,290,000	
Scheduled Construction	$ 8,440,000		
Unscheduled Construction	4,850,000		
Estimated Non-Federal Cost		2,830,000	
Scheduled Construction	810,000		
Cash Contributions	$ 0		
Other Costs	810,000		
Unscheduled Construction	2,020,000		
Cash Contribution	1,150,000		
Other Costs	870,000		
Total Estimated Scheduled Construction Cost		$ 9,250,000	
Total Estimated Unscheduled Construction Cost		6,870,000	
Total Estimated Remedial Cost		16,120,000	
Total Estimated Project Cost		$180,045,000	

1090

SUMMARIZED FINANCIAL DATA (Continued)

Allocations to 30 September 1989	$ 74,395,000	
Conference Allowance for FY 1990	730,000	
Allocation for FY 1990	430,000 1/	
Allocations through FY 1990	74,825,000	91
Allocation Requested for FY 1991	$ 1,050,000	92
Scheduled Balance to Complete After FY 1991	1,490,000	
Unscheduled Balance to Complete After FY 1991	4,850,000	

1/ Reflects reduction of $70,000 assigned as savings and slippage, $9,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $221,000 reprogrammed from the project.

PHYSICAL DATA
ORIGINAL PROJECT

Levees: Average Height - 15 feet
Length - 980 miles

Bypass or Floodways: 4 Bypasses

Channels: Channel Enlargement - 15 miles along the Sacramento River

Weirs: 5 Overflow Weirs

Cut-offs: 2 River Cut-offs

Pumping Plants: 3 Pumping Plants along east levee of Sutter Bypass

REMEDIAL WORK

Cache Slough/Yolo Bypass (Unit 109)
Levee: Average Height - 25 feet
Length 1 mile 1/

1/ Remedial work included reconstruction of 1/2 mile of existing levee and construction of a cross levee 1/2 mile in length.

Colusa Basin Drain (Unit 132)/Knights Landing Ridge Cut (Unit 127)

Levee: Unit 132 - Colusa Basin Drain
Length - 12 miles
Average Height - 15 feet

Levees: Unit 127 - Knights Landing Ridge Cut
Length - 6 miles
Average Height - 15 feet

1091

JUSTIFICATION: The Sacramento River Flood Control Project was initiated by local interests in 1917 and has been modified and expanded several times since that date. This extensive project protects over one million acres in which about 50 communities are located. The value of lands and improvements protected by the project is about $26.3 billion and approximately 1,780,000 people live within the flood plain. The levee system enables the use of the flood plain for the benefit of the state and nation. Eight percent of the total agricultural production of the state of California and 18 percent of the rice production of the nation are protected by the Sacramento River Flood Control Project.

Cache Slough/Yolo Bypass: The levees near the junction of Cache Slough and the Yolo Bypass were originally constructed on a peat foundation and were subject to subsidence. This was a continuing problem which seriously jeopardized the stability and flood carrying capacity of the project levees in this reach. This portion of the project was turned over to local interests for operation and maintenance in November 1989, when remedial construction was completed. The area protected comprises about 13,000 acres of highly developed agricultural land and related homes, roads and buildings. Colusa Basin Drain/Knights Landing Ridge Cut: The levees in these areas were originally constructed by local landowners and modified by the Corps of Engineers in the 1950's as part of the project. Responsibility for the operation and maintenance of the levees was turned over to the State Reclamation Board in the 1950's. However, the levees have experienced serious subsidence, slippage, and partial collapse since the transfer. Between 1956 and 1986, emergency flood repairs (PL 84-99) have been required 8 times at the Colusa Basin area and 4 times on the Knights Landing levees. The continuing need for repairs is not attributable to maintenance deficiencies. The levees constitute a hazard to the integrity of this portion of the Sacramento River Flood Control levee system. Failure of the levees would result in extensive long term flooding of over 100,000 acres devoted to rice production, highways, roads, public utilities, agricultural equipment and some urban developments such as Knights Landing and Dunnigan.

Marysville/Yuba City Urban Area: Levee evaluation studies of approximately 300 miles of project levees have been initiated in the Marysville and Yuba City area. Results to date indicate that structural problems caused by ongoing seepage and subsidence exist on between 20 and 40 miles of levees. Reconstruction will be required to maintain the integrity of the Sacramento River Flood Control Project. The levees were locally constructed and incorporated into the project levee system when it was authorized in 1917. High flow conditions during the February 1986 storm event resulted in a levee break on the Yuba River, the evacuation of about 20,000 people and about $100 million in flood damages. Additional flood damages of about $2 million were incurred on the Feather and Bear Rivers and about $1 million in post flood levee repair work was required. The levee system protects about 125,000 people in the Marysville/Yuba City area. Levee failure would result in significant property damages and potential loss of life.

1092

FISCAL YEAR 1991: The requested amount of $1,050,000 will be applied as follows:

Engineering and Design for Colusa Basin/Knights Landing	410,000
Engineering and Design for Marysville/Yuba City	550,000
Supervision and Administration	90,000
Total	$1,050,000

NON-FEDERAL COST: Local interests have provided all lands, easements, rights-of-way and relocations for construction of the original project and are operating and maintaining all completed work. The actual costs for the original project included cash, lands and damages, relocations, and work in kind dating to 1910. The non-Federal cost for Cache Slough/Yolo Bypass remedial work was $810,000 for lands, easements, rights-of-way and relocations. The Colusa Basin Drain/Knights Landing Ridge Cut element of the project will require the non-Federal sponsor to comply with the cost-sharing and financing concepts reflected in the Water Resources Development Act of FY 1986.

The non-Federal sponsor must comply with requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Original Project		
Lands and damages, relocations, and work-in-kind	$ 90,050,000	$5,480,000
Cash	4,950,000	
Remedial Work		
Cache Slough/Yolo Bypass (Unit 109)		
Provide lands, easements, rights-of-way, and dredge material disposal areas.	610,000	3,000
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	200,000	

1093

NON-FEDERAL COST: (Continued)

Colusa Basin Drain/Knights Landing Ridge Cut

Provide lands easements, rights-of-way, and dredge material disposal areas.	760,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	110,000	
Pay 14 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	1,150,000	20,000 1/
Total Non-Federal Costs	$ 97,830,000	

The non-Federal Sponsor has also agreed to make all required payments concurrently with project construction.

1/ Reconstruction will reduce, not increase, maintenance cost for these items.

STATUS OF LOCAL COOPERATION: All completed work has been transferred to the State Reclamation Board. Responsibility for maintenance of approximately 980 miles of the levees has been turned over to the State Reclamation Board. The Reclamation Board is also responsible for the operation and maintenance of the Colusa Basin Drain and Knights Landing Ridge Cut levees and will act as the local sponsor for remedial construction work. A Local Cooperation Agreement for this element of the project will be executed prior to initiation of construction.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $82,215,000 is a decrease of $20,010,000 from the latest estimate ($102,225,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Authorized Modifications	$-20,500,000
Additional Functions added under Gen'l Auth	2,000,000
Post Contract Award and Other Estimating Adjustments	- 560,000
Schedule Changes	- 1,010,000
Sundry	50,000
Price Levels	10,000
Total	$-20,010,000

1094

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The original Sacramento River Flood Control Project was substantially complete prior to 1970 and an Environmental Impact Statement (EIS) was not prepared. Prior to initiation of the Cache Slough/Yolo Bypass remedial work an Environmental Assessment (EA) determined that environmental impacts were not significant enough to require an EIS. A Finding of No Significant Impact (FONSI) was filed on 15 August 1986. Subsequently, an EA/FONSI on the borrow area for Cache Slough/Yolo Bypass was filed in November 1988. Environmental requirements will be addressed separately for each element included in the project.

OTHER INFORMATION: Construction was initiated in Fiscal Year 1918. All major project items are completed. A contract to remedy subsidence at the junction of Cache Slough and the Yolo Bypass was completed in November 1989 and responsibility for maintenance was accepted by the State. Biotechnical slope protection (planting various erosion retarding shrubs, reeds and grasses) will complete remedial requirements.

Colusa Basin Drain/Knights Landing Ridge Cut - In April 1986, an economic and engineering evaluation of the levee subsidence problems at Colusa Basin Drain (Unit 132) and Knights Landing Ridge Cut (Unit 127) was completed. Subject to Section 903(a), remedial construction necessary to restore the project levees was authorized by the Water Resources Development Act of 1986.

Following the record high flows of February 1986, Operations & Maintenance funds were provided under Inspection of Completed Works to perform an evaluation of the integrity of the Sacramento River Flood Control System and to study suspected deterioration of system facilities. A five phase program which divided the system into five study areas was developed. In each phase, the structural stability of the levees is examined and a determination made as to whether the system is functioning at its design level. The results of each study phase are submitted as an Initial Appraisal Report to ASA(CW).

Phase 1 - Sacramento Urban Area: The Initial Appraisal Report was approved on 23 March 1989 for engineering and design under the existing authority of the Sacramento River Flood Control Project. The Sacramento Urban Area Levee Reconstruction is budgeted as a separate project.

Phase 2- Marysville/Yuba City Area: The Initial Appraisal Report is scheduled for submittal to HQUSACE in June 1990.

1095

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sacramento Urban Area Levee Reconstruction , California (Continuing Construction)

LOCATION: The project is located within the boundaries of the Sacramento River Flood Control System in the highly urbanized area around the city of Sacramento, near the confluence of the Sacramento and American Rivers. It includes the Natomas area levees from Natomas Cross Canal along Garden Highway to Natomas Main Drain Canal; the south levee of the Sacramento Bypass through Reclamation District 900 and portions of the Yolo Bypass east levee in West Sacramento; and, in South Sacramento, the east bank of the Sacramento River from Miller Park to the town of Freeport.

DESCRIPTION: A recent evaluation of 110 miles of levees in the Sacramento urban area identified approximately 32 miles that are structurally unstable. The project consists of reconstructing those levees. In addition to restoring levee stability in and around Sacramento, levee reconstruction will eliminate several weak points in the Sacramento River Flood Control System, improving the system's overall performance and allowing it to function as designed in the project area.

AUTHORIZATION: Flood Control Acts of 1917, 1928 and 1941; River and Harbor Act of 1937.

REMAINING BENEFIT-REMAINING COST RATIO: 5.8 to 1 at 8 7/8 percent.

TOTAL BENEFIT-COST RATIO: 3.9 to 1 at 8 7/8 percent.

INITIAL BENEFIT-COST RATIO: No initial benefit-cost ratio was reported for the Sacramento River Flood Control Project. The initial benefit-cost ratio reported in the May 1988 Initial Appraisal Report for the Sacramento Urban Area Levee Reconstruction was 4.5 to 1 at 8 5/8 percent (FY 1989).

BASIS OF BENEFIT-COST RATIO: The benefit-to-cost ratio is based on final economic information included in the Local Cooperation Agreement Supporting Document at 1989 price levels.

1096

SUMMARIZED FINANCIAL DATA			ACCUM. PCT. OF EST. FED. COST	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
				Entire Project	Not Started	Nov 1992
Estimated Federal Cost		$ 21,800,000				
Estimated Non-Federal Cost		$ 21,800,000				
Cash Contributions	$ 2,180,000					
Other Costs	$20,534,000					
Reimbursement	$- 914,000					
Total Estimated Project Cost		$ 43,600,000				
Allocations to 30 September 1989		$ 1,200,000				
Conference Allowance for FY1990		3,870,000				
Allocation for FY 1990		3,600,000 1/				
Allocations through FY 1990		4,800,000	22			
Allocation Requested for FY 1991		$ 13,470,000	84			
Balance to Complete After FY 1991		$ 3,530,000				

1/ Reflects reduction of $84,000 assigned as savings and slippage, $49,000 sequestered in accordance with the Gramm-Rudman-Hollings Act and $137,000 reprogrammed from the project.

1097

PHYSICAL DATA

Levees: Average Height - 15 feet
Length: 31.5 miles

JUSTIFICATION: Record high flow conditions during the February 1986 and other storms resulted in Corps participation in 9 major flood fights in the Sacramento area at a cost of $3.0 million. Expenditure of an additional $10.0 million was required for post flood repair work. In Natomas, emergency repair of ten separate slips on the Garden Highway levees prevented potential inundation of thousands of homes, industrial and commercial areas, two major interstate highways, Sacramento Metropolitan Airport and thousands of acres of farmland. Following these events, the stability of the Sacramento River flood control system levees was evaluated. An evaluation report, completed in January 1988 and approved in March 1989, determined that reconstruction of the levees in the Sacramento urban area was necessary. The levees were locally constructed in the early 1900's and incorporated as part of the flood control system in 1917. Nearly 32 miles of project levees, mainly in the Natomas and South Sacramento areas, have serious structural problems due to inadequate original construction materials and techniques. The project levees protect more than 130,000 people

Division: South Pacific District: Sacramento

29 JAN 1990

Sacramento Urban Area Levee Reconstruction, California

and $5.7 billion of property in the Sacramento area. The potential for a catastrophic event is great and the ability to avert the threat from inundation is inadequate. Average annual benefits are all flood control and are estimated to be $14,200,000 at October 1989 price levels.

FISCAL YEAR 1991: The requested amount of $13,470,000 will be applied as follows:

Initiate Phase 2 Greenhaven Contract	$ 5,600,000
Continue Natomas/West Sacramento Contract	3,200,000
Continue Mitigation Planting	2,200,000
Complete Phase 1 Greenhaven Contract	570,000
Engineering and Design	900,000
Supervision and Administration	1,000,000
Total	$13,470,000

NON-FEDERAL COST: In accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of FY 1986, the non-Federal sponsor must comply with requirements listed below:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$14,100,000	
Modify or relocate buildings, utilities, roads bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	$ 6,434,000	

1098

Requirements of Local Cooperation (Continued)

Pay 5 percent of the costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	$ 2,180,000	$ 80,000 1/
Federal reimbursement to non-Federal sponsor for one half of the non-Federal costs allocated to flood control in excess of Federal costs.	$- 914,000	
Total Non-Federal Costs	$21,800,000	

The non-Federal Sponsor has also agreed to make all required payments concurrently with project construction.

1/ Reconstruction will reduce, not increase, annual O&M costs.

STATUS OF LOCAL COOPERATION: By letter dated 13 April 1989, the California State Reclamation Board again stated their strong support for the Sacramento Urban Area Levee Reconstruction project and their intent to participate as the project's local sponsor. The California Reclamation Board has expressed willingness and ability to cost-share the project in compliance with the provisions of Section 103(a) of the Water Resources Development Act of 1986. The Reclamation Board has cited the levee reconstruction as a top priority to the State Department of Finance and legislative staff. The Local Cooperation Agreement is being finalized and will be executed prior to construction. The state has appropriated funds for the non-Federal share of the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $21,800,000 is an increase of $1,300,000 from the latest estimate ($20,500,000) presented to Congress (FY 1990).

Item	Amount
Additional Functions Added under General Authority	$3,392,000
Other Estimating Adjustments	-2,092,000
Total	$1,300,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An Environmental Assessment/Finding of No Significant Impact (EA/FONSI) was released for public review in September 1989. Comments from the environmental community have been addressed. The EA/FONSI was filed on 21 November 1989.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1989 (Sacramento River Flood Control Project, California), and funds to initiate construction were appropriated in FY 1990.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: San Luis Rey River, California (Continuing)

LOCATION: The project is located along the lower 7.2 miles of the San Luis Rey River in San Diego County, in the vicinity of the city of Oceanside, about 30 miles north of San Diego, California.

DESCRIPTION: The recommended plan consists of approximately 5.4 miles of a double levee, stone-protected channel with a soft bottom, 1,330 feet of parapet walls, six interior drainage ponds, and a 5-mile bicycle trail.

AUTHORIZATION: Section 201 of the 1965 Flood Control Act (Authorized 1970) and the Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.0 to 1 at 7-7/8 percent.

TOTAL BENEFIT-COST RATIO: 1.2 to 1 at 7-7/8 percent.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 7-7/8 percent (FY 1987). (See OTHER INFORMATION.)

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on the supplemental design memorandum approved in June 1988 at 1987 price levels.

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$33,000,000	
Estimated Non-Federal Cost		11,100,000	
Cash Contribution	$4,700,000		
Other Costs	6,400,000		
Total Estimated Project Cost		$44,100,000	
Allocations to 30 September 1989		$ 9,727,000	
Conference Allowance for FY 1990		10,000,000	
Allocation for FY 1990		4,146,000 1/	
Allocations through FY 1990		13,873,000	42

STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Entire Project	50	Sep 1992

PHYSICAL DATA

Recreation Facilities:
Bicycle trail - about 5 miles

Levees:
Type - Stone revetted
Length - 5.4 miles
Average Height - 20 feet

Type - Parapet walls
Length - 1,330 feet
Average Height - 4 feet

1/ Reflects reduction of $965,000 assigned as savings and slippage, $103,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $4,786,000 reprogrammed from the project.

Division: South Pacific District: Los Angeles San Luis Rey River, California

19 JAN 1990

Allocation Requested for FY 1991	5,500,000	59
Scheduled Balance to Complete After FY 1991	13,627,000	
Unscheduled Balance to Complete After FY 1991	0	

JUSTIFICATION: Construction of this project will provide protection to lands and improvements in the lower San Luis Rey River Valley, most of which is within the city of Oceanside. Approximately 7,000 persons live or work in the 3,860 acre overflow area that will be protected by the project. The present value of lands and improvements in the overflow area is about $604 million. The flood of record occurred in January 1916 when an estimated peak discharge of 95,600 cubic feet per second occurred at Oceanside. The entire valley floor was flooded, agricultural damage was heavy, and every bridge was washed out. The city of Oceanside was isolated for about two weeks. The total physical damage in the basin was estimated at $1 million, but there were few homes or commercial properties in the valley at that time. A repetition of the 1916 flood, under present conditions, would result in a peak discharge of 49,000 cubic feet per second and would cause damages estimated at $18,650,000 in the lower valley. The most recent flood occurred in January-February 1980, with a peak discharge of 25,000 cubic feet per second, and caused an estimated $2 million in damages to an existing levee and the industrial/airport area. The industrial park and the airport for the city of Oceanside are located in the flood plain. Practically all of these damages would have been prevented had the project been in full operation. Average annual benefits, at October 1987 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$3,875,000
Recreation	165,000
Total	$4,040,000

FISCAL YEAR 1991: The requested amount will be applied as follows:

Initiate levee and recreation construction - Murray Road Bridge to Foussat Street Bridge	$4,887,000
Engineering and Design	99,000
Supervision and Administration	514,000
Total	$5,500,000

Division: South Pacific District: Los Angeles San Luis Rey River, California

1101

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the following requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance and Replacement Costs
Provide lands, easements, and rights-of-way, and dredged material disposal areas.	$ 6,100,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	300,000	
Pay 10 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities (which is partially offset by a credit allowed ($550,000) for prior work (Section 104 of WRDA 1986)).	4,350,000	$245,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	350,000	5,000
Total Non-Federal Costs	$11,100,000	$250,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: By 23 October 1985 letter, the City Council of Oceanside expressed its willingness to financially participate in the construction of the project at a level consistent with current cost-sharing policy for construction. A Local Cooperation Agreement (LCA) was executed on 13 May 1988. The city of Oceanside will receive cash credit for prior work completed under a Section 215 Agreement executed on 18 May 1983.

The current non-Federal cost estimate of $11,100,000, which includes a cash contribution of $4,700,000, is an increase of $100,000 from the non-Federal cost estimate of $11,000,000 noted in the Local Cooperation Agreement, which included a cash contribution of $4,500,000. The current cash contribution reflects a credit allowed ($550,000) for prior work (Section 104 of WRDA 1986). Our analysis of the non-Federal sponsor's financial capability to participate in the project affirms that the sponsor has a reasonable and implementable plan for meeting its financial commitment.

1102

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $33,000,000 is an increase of $900,000 over the latest estimate ($32,100,000) presented to Congress (FY 1990). This change includes the following items.

Item	Incremental Change
Price Escalation on Construction Features	$ -229,000
Post Contract Award and Other Estimating Adjustments	1,129,000
Total	$ 900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An EIS was filed with CEQ on 13 November 1970. The final supplemental EIS was submitted to EPA on 31 March 1982. A supplemental environmental assessment incorporating the Section 7 consultation results on an endangered species, the least Bell's vireo, was signed in March 1988. A supplemental environmental assessment for the first construction contract reach was signed in September 1988. Revised environmental documents will be signed July 1990 before proceeding on Reach 2 construction in August 1990.

OTHER INFORMATION: Funds were appropriated to initiate preconstruction planning in FY 1976 and to initiate construction in FY 1987. However, funds to initiate construction were deferred pending completion and approval of the Supplemental General Design Memorandum. The Supplemental GDM was completed in January 1988 and approved June 1988. Construction was initiated in September 1988.

By Resolution No. 87-170 dated 2 June 1987, the city of Oceanside requested the Corps to proceed with a Supplemental General Design Memorandum to reflect changes in the single levee plan to minimize adverse impacts on the endangered least Bell's vireo.

In accordance with Section 1165 of the Water Resources Development Act of 1986, the interest rate for the purpose of analyzing the costs and benefits of the project is the rate in effect when the Section 215 Agreement was signed on 18 May 1983, 7-7/8 percent.

A Conditional Use Permit was issued by the city of Oceanside in 1970 which permitted sandmining in the upper reach of the project between Murray Road Bridge and Douglas Drive Bridge. The City's permit limited sandmining to elevations above the channel bottom profile established by the survey report. It has recently been determined that the sandmining has exceeded this restriction, creating pits substantially deeper than the design channel bottom profile and changing the sediment transport pattern. The Corps notified the city of Oceanside in August 1989, and the city immediately issued a "cease and desist" order and subsequently rescinded the conditional use permit for sandmining in the area. The problem caused by the lowered channel bottom may be resolved by filling the pits with disposal material from other channel work at increased project cost. The cost increase which might result from this problem and the appropriate Federal/non-Federal cost-sharing of the increase have not yet been fully evaluated.

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control).

PROJECT: Santa Ana River Mainstem, California (Continuing)

LOCATION: The project is located along a 75-mile reach of the Santa Ana River in Orange, Riverside, and San Bernardino Counties southeast of and adjacent to metropolitan Los Angeles, California.

DESCRIPTION: The plan of improvement provides for construction of the Seven Oaks Dam about 35 miles upstream of the existing Prado Dam, with a gross reservoir storage of 145,600 acre feet; flood plain management of the flood overflow area on the Santa Ana River between Seven Oaks Dam and the existing Prado Reservoir; enlargement of Prado Dam to increase the reservoir storage capacity from 217,000 acre-feet to 362,000 acre-feet; construction of 3.3 miles of channel modifications along Oak Street Drain in Corona; enlargement of the existing 2.4 miles of Mill Creek levee; construction of a detention basin and 1.2 miles of channel modifications along the Santiago Creek; and various means of flood control, including flood plain management, levees, and vertical walled concrete channels along the 30.5 miles of the Santa Ana River from Prado Dam to Pacific Ocean. In addition, the plan includes recreational development and purchase of lands for mitigation and preservation of endangered species. A project for San Timoteo Creek was added to the Santa Ana River Mainstem project in the Energy and Water Development Appropriation Act, 1988. Feasibility level studies are underway in 1990 but engineering and design and construction are not scheduled.

AUTHORIZATION: Water Resources Development Act of 1986 and Energy and Water Development Appropriation Act, 1988.

REMAINING BENEFIT-REMAINING COST RATIO: 1.5 to 1 at 8-5/8 percent.

TOTAL BENEFIT-COST RATIO: 1.3 to 1 at 8-5/8 percent.

INITIAL BENEFIT-COST RATIO: 1.3 to 1 at 8-5/8 percent (FY 1990).

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio is based on the Phase II General Design Memorandum submitted in August 1988 at 1987 price levels.

1104

SUMMARIZED FINANCIAL DATA			Accum. Pct. of Est. Fed. Cost
Estimated Federal Cost		$908,000,000	
Scheduled Construction	$852,600,000		
Unscheduled Construction	55,400,000		
Estimated Non-Federal		451,000,000	
Scheduled Construction	441,600,000		
Cash Contributions	64,200,000		
Other Costs	377,400,000		
Estimated Non-Federal Cost			
Unscheduled Construction	9,400,000		
Cash Contribution	3,800,000		
Other Costs	5,600,000		
Total Estimated Scheduled Construction Cost		$1,294,200,000	
Total Estimated Unscheduled Construction Cost		64,800,000	
Total Estimated Project Cost		$1,359,000,000	
Allocations to 30 September 1989		$ 25,643,000	
Conference Allowance for FY 1990		20,000,000	
Allocation for FY 1990		19,992,000 1/	
Allocations Through FY 1990		45,635,000	5
Allocation Requested for FY 1991		65,000,000	12
Scheduled Balance to Complete After FY 1991		741,965,000	
Unscheduled Balance to Complete After FY 1991		55,400,000	

STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Seven Oaks Dam	0	Sep 1997
Prado Dam	0	Sep 2000
Santiago Creek	0	Mar 1993
Mill Creek	0	Mar 1993
Oak Street Drain	0	Mar 1992
Lower Santa Ana River Channel	0	Sep 2000
Seven Oaks to Prado Floodway	0	Aug 1990
San Timoteo Creek	0	Unscheduled
Entire Project	0	Unscheduled

1/ Reflects reduction of $1,929,000 assigned as savings and slippage, $206,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,127,000 reprogrammed to the project.

1105

Division: South Pacific District: Los Angeles Santa Ana River Mainstem, California

29 JAN 1990

PHYSICAL DATA

SEVEN OAKS DAM:
Dam: Type - Impervious core
Height - 550 feet
Length - Crest length 2,980 feet
Outlet Works: Gated conduit, 8,000 cfs maximum discharge
Basin Capacity: 145,600 acre-feet
Spillway: Type - Detached overflow, 500 ft wide, unlined
Embankment: Earth and Rockfill
Lands & Damages: Acres - 2,736 existing streambed and undeveloped (mountainous)

MILL CREEK:
Levee repair: Type - Grouted riprap
Height - 10 feet maximum
Length - 12,500 feet (2.4 miles) of existing
13,600 feet (2.6 miles)

Floodwall (Top of levee): Type - Concrete
Height - 7.5 feet maximum
Length - 12,600 feet (2.4 miles)

OAK STREET DRAIN:
Channel: Rectangular concrete 3.0 mile
Trapezoidal riprap 0.3 mile
Lands & Damages: 34 acres for rights-of-way

SANTIAGO CREEK:
Channel: Rectangular concrete 500 feet
Trapezoidal riprap 2.0 miles
Reservoir: Buttressed
Basin Capacity: Flood control 4620 acre feet (el. 274 to 298)
Lands and Damages: 281.5 acres, reservoir and channel

PRADO DAM:
Dam: Type - Impervious core
Height - 134 feet
Length - 3,050 crest length
Embankment: Rolled earthfill
Spillway: Type - Detached, overflow concrete, 1,000 feet wide, 578,000 cfs maximum design discharge.
Basin Capacity: 362,000 acre-feet
Lands & Damages: Acres - 1,661 grazing, wildlife

LOWER SANTA ANA RIVER:
Channel: - 160-450 feet wide, 34 bridges replaced or modified
- 5.0 miles trapezoidal concrete
- 2.4 miles rectangular concrete
- 15.5 miles trapezoidal grouted riprap
Lands & Damages: Acres - 2,429.5 for channel (7.4 miles floodway)
Mitigation Lands: Acres - 92 marsh restoration

SAN TIMOTEO CREEK: Undefined

1106

JUSTIFICATION: Construction of this project will primarily provide protection to lands and improvements within Orange County downstream of Prado Reservoir. A severe flood threat exists in this area, which could cause damages in excess of $15 billion and could endanger and disrupt the lives of over two million people living or working in the floodplain. Damages upstream of Prado Reservoir could exceed $450 million. The overflow area comprises 160 square miles of primarily urban development in 15 cities including San Bernardino, Riverside, Anaheim, Orange, Santa Ana, Fountain Valley, Costa Mesa, Huntington and Newport Beach. The greatest potential damage area is the Orange County flood plain below Prado Dam. The flood of 1938 is the largest that has been recorded since accurate stream gages were placed in the basin. With a peak flow at Riverside Narrows of approximately 100,000 cubic feet per second, the flood covered thousands of acres of then predominantly rural Orange County. Although the area was largely agricultural at the time, the flood caused $4 million in damages ($79 million at 1989 prices). Following this storm, Prado Dam was constructed at the head of the Santa Ana Canyon, providing effective control of floods for much of the downstream basin. In 1969, when communities upstream of Prado Dam suffered $85 million in damages, Prado Dam prevented an estimated $525 million in damages to downstream communities. With current development, damages for a similar flood would be approximately $2.6 billion. Without the project, the level of protection downstream of Prado, primarily in Orange County, is approximately 70 years. With the project, the level of protection downstream of Prado would be increased to 190 years. Estimated average annual benefits, based on October 1987 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$135,976,000
Recreation	282,000
Total	$136,258,000

1107

FISCAL YEAR 1991: The requested amount will be applied as follows:

Complete construction of abutment stripping at Seven Oaks Dam	$11,129,000
Initiate channel construction at Oak Street Drain	6,630,000
Initiate & complete cultural resource construction at Seven Oaks Dam	207,000
Initiate construction on Reach 1 and 10 and marsh at Lower Santa Ana River	32,858,000
Engineering and Design	10,901,000
Supervision and Administration	3,275,000
Total	$65,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsors must comply with the following requirements listed below.

Requirements of Local Cooperation	Payments During Construction	Annual Operation, Maintenance, and Replacement Costs
Santa Ana River Mainsteam:		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	$312,597,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	64,803,000	
Pay 5 percent of total project costs allocated to flood control and bear all cost of operation, maintenance, and replacement of flood control facilities.	63,450,000	$1,660,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	750,000	6,000
San Timoteo Creek:		
Provide lands, easements, rights-of-way, and dredged material disposal areas.	292,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	5,308,000	
Pay 5 percent of total project costs allocated to flood control and bear all cost of operation, maintenance, and replacement of flood control facilities.	3,800,000	972,000
Total Non-Federal Costs	$451,000,000	

The non-Federal sponsors have also agreed to make all required payments concurrently with project construction.

1108

STATUS OF LOCAL COOPERATION: Orange, San Bernardino, and Riverside Counties are the local sponsors. By resolutions passed by San Bernardino on 9 December 1985 and by Riverside and Orange Counties on 10 December 1985, the sponsors agreed to support the total project. The local sponsors are able and willing to cost share. A Memorandum of Agreement was executed with Orange County on 6 December 1987 whereby the county would contribute funds to assure the project design schedule is maintained. The Los Angeles District received a total of $3 million through Fiscal Year 1989 and is scheduled to receive $7 million in Fiscal Year 1990. Orange County will receive credit for those funds towards their share of the project costs during construction. In addition, Orange County worked with California Department of Transportation (CALTRANS) to relocate some key bridges in Fiscal Year 1988, in advance of project construction. On 14 December 1989, the Local Cooperation Agreement was signed in compliance with the requirements of the Water Resources Development Act of 1986. The cost shown in the LCA, $1,293,000,000, is the same as the current estimate for the included work.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $908,000,000 is a decrease of $110,000,000 from the latest estimate ($1,018,000,000) presented to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ +10,100,000
Design Changes	-108,895,000
Post-Contract Award and Other Estimating Adjustments	-11,205,000
Total	$-110,000,000

1109

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS was filed with EPA in June 1989.

OTHER INFORMATION: Funds to initiate preconstruction engineering and design were appropriated in FY 1979 and funds to initiate construction were appropriated in FY 1990.

Through negotiations with Fish and Wildlife Service on Section 7 consultations for endangered species (Eriastrum at Seven Oaks and least Bell's vireo at Prado Dam), agreement was reached on the number of acres for mitigation. The final biological opinion necessary for formal conclusion of the consultation was received from Fish and Wildlife Service 22 June 1989.

Coordination with the U.S. Fish and Wildlife Service and the California Department of Fish and Game was initiated early in the planning of alternatives and completed 30 March 1989. The coordination produced a Fish and Wildlife Service Coordination Act Report that was included in the Environmental Impact Statement. Numerous coordination meetings were held, and these agencies had a role in the determination of project associated impacts as well as ritigation needs and opportunities.

An agreement was signed on 21 September 1989, in accordance with Section 215 of the Flood Control Act of 1968, to permit Orange County to undertake early partial construction of the Santiago Creek improvements in conjunction with other improvements they are planning for water supply, and to be reimbursed for applicable project construction.

Section 104 of the Energy and Water Development Appropriation Act of 1988 authorized ." ...San Timoteo Creek in the vicinity of Loma Linda for construction as part of the Santa Ana River Mainstem including Santiago Creek Project... the benefits and costs of the San Timoteo project shall be included together with the benefits and costs of the Santa Ana Mainstem including Santiago Creek" at a total cost of $25,000,000. Feasibility level studies are underway, but engineering and design and construction are unscheduled.

1110

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Sweetwater River, California (Continuing)

LOCATION: The project is located approximately four miles south of the city of San Diego, in the cities of Chula Vista and National City and unincorporated areas in San Diego County, California.

DESCRIPTION: The authorized project includes construction of 3.2 miles of trapezoidal and stone-revetted channel improvements along Sweetwater River from Interstate 805 Freeway to San Diego Bay in combination with state freeway Route 54 and Interstate 5 construction. Project also includes construction of two railroad bridges, and fish and wildlife preservation/mitigation.

REMAINING BENEFIT-REMAINING COST RATIO: 31.0 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 3.0 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.4 to 1 at 3-1/4 percent (FY 1972).

BASIS OF BENEFIT-COST RATIO: The benefits are based on a revised General Design Memorandum dated May 1984, approved by the Chief of Engineers on 3 August 1984, at 1983 price levels.

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$94,500,000			
Corps of Engineers	$31,200,000				
Dept. of Transportation	63,300,000	1/			
Estimated Non-Federal Cost		22,630,000	Entire Project	67	Mar 1992
Cash Contribution	$ 0				
Other Costs	22,630,000				
Channel	14,930,000				
Highway	7,700,000	1/			
Total Estimated Project Cost		$117,130,000			

1/ Excludes an allowance for estimated inflation through the construction period.

DIVISION: South Pacific District: Los Angeles Sweetwater River, California

SUMMARIZED FINANCIAL DATA (Cont'd)		Accum % of Est. Fed. Cost	PHYSICAL DATA
Allocations to 30 September 1989	$20,887,000		Bridges:
Conference Allowance for FY 1990	2,500,000		Railroad-2 and Trackwork ($3,879,000)
Allocation for FY 1990	2,162,000 2/		Channels:
Allocation through FY 1990	$23,049,000	74	Trapezoidal unlined-0.6 miles
			Stone revetted-2.6 miles
Allocation Requested for FY 1991	$5,000,000	90	
Scheduled Balance to Complete After FY 1991	3,151,000		
Unscheduled Balance to Complete After FY 1991	0		

2/ Reflects reduction of $241,000 assigned as savings and slippage, $26,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $71,000 reprogrammed from the project.

JUSTIFICATION: Construction of this project, which is a comprehensive flood control and highway transportation plan, will provide urgently needed flood protection to lands and improvements in the lower Sweetwater River Valley. About 6,400 persons live or work in the 1,250 acre overflow area which will be protected by the project. The authorized channel will protect residential, commercial, industrial, and recreational properties; transportation facilities; and utilities, including water wells, sewers, and high-pressure gas and oil lines. Under present conditions of development, a repetition of the 1916 flood of record, modified by existing reservoirs, would cause damages estimated at about $40,200,000. A repetition of the 1927 flood would cause damages of $19,300,000, practically all of which would be prevented with the project in full operation. The present value of all properties in the overflow area is $167,000,000. Floods also occurred in 1976, 1979, 1980 and 1983, washing out roads, closing streets, and causing flooding in trailer parks, industrial yards, and buildings. The combined flood control and highway plan will permit the most efficient use of the limited lands available in the Sweetwater River Valley. Average annual benefits, at October 1983 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$ 1,098,000
Transportation Savings (Highway)	9,118,000
Total	$10,216,000

DIVISION: South Pacific District: Los Angeles Sweetwater River, California

FISCAL YEAR 1991: The requested amount of $5,000,000 will be applied as follows:

Continue Channel Construction	$4,500,000
Continue Fish and Wildlife Preservation	350,000
Engineering and Design	70,000
Supervision and Administration	80,000
Total	$5,000,000

NON-FEDERAL COST:

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 8,311,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	6,619,000	
State Freeway Route 54	7,700,000	
Total Non-Federal Costs	$22,630,000	

STATUS OF LOCAL COOPERATION: The State of California officially adopted the project in Chapter 1038, Statute of 1968, and Water Code 12745. In conformance with Section 221, Flood Control Act of 1970, Public Law 91-611, a written agreement of the local cooperation requirements for the entire project, including local acquisition of 188 acres of preservation and mitigation lands, was obtained from the San Diego County Board of Supervisors and signed by the District Engineer on 30 December 1984. Initially, Chula Vista and National City expressed interest in cost sharing recreation facilities. However, those facilities have been determined to not be economically feasible and/or not available due to the wildlife preservation requirements, and recreation facilities have been deleted from the project.

1113

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $31,200,000 is an increase of $700,000 over the latest estimate ($30,500,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 738,000
Post Contract Award and Other Estimating Adjustments	1,276,000
Schedule Change	-1,314,000
Total	$ 700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Environmental Impact Statement was filed with EPA on 6 August 1982.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1970, and to initiate construction in FY 1972.

The project Section 221 Agreement required the local sponsor to acquire 188-acres of marshland (44 acres for mitigation and 144 acres for preservations of wildlife) and to transfer title to those lands to the U.S. Fish and Wildlife Services, to the California Department of Fish and Game, or to another approved agency for preservation in public trust, within one year of the 30 December 1984 signing of the agreement.

In July 1987, the Sierra Club filed suit, and the project was enjoined because of the failure of the local sponsor to acquire the preservation and mitigation lands. Caltrans initiated a cross-claim against the United States seeking reimbursement of any additional costs due to the injunction, and the United States initiated a cross-claim against San Diego County, the local sponsor, for its failure to acquire the mitigation land as promised in the Local Cooperation Agreement. On 14 May 1988, a court settlement was reached that permitted construction to continue if the sponsor, Caltrans, and the Corps complied with a number of requirements that resulted from the reopening of Section 7 consultation. All work was allowed to proceed in May 1988 when the settlement was signed. The required lands were transferred to the U.S. Fish and Wildlife Services on 12 August 1988. Both cross-claims remain alive, and the issue of responsibility for increased costs due to work stoppage is yet to be determined in the U.S. Claims Courts. The court settlement required a number of actions to be included in the project that were not previously included. The most significant of these changes are the creation of 17.1 acres of marshland on project lands and construction of additional devices for diverting fresh water into the marsh area. The Corps prepared a letter report to supplement the General Design Memorandum and an Environmental Assessment with a Findings of No Significant Impact to address the changes made to the project by the court settlement.

1114

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Walnut Creek, California (Continuing)

LOCATION: The project is located on Walnut Creek on the lower reaches of its principal tributaries, Pacheco, Grayson, San Ramon, Las Trampas, and Galindo Creeks and the lower and upper reaches of Pine Creek in Contra Costa County, California, about 20 miles northeast of San Francisco.

DESCRIPTION: The project includes about 22 miles of channel improvements consisting of channel enlargement, channel stabilization, and levees along Walnut Creek and the lower reaches of San Ramon and Las Trampas Creeks, channel improvements on Pine and Galindo Creeks, and backwater levees on lower Grayson and Pacheco Creeks.

AUTHORIZATION: 1960 Flood Control Act.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable since the project is nearing completion.

TOTAL BENEFIT-COST RATIO: 4.2 to 1 at 2 7/8 percent.

INITIAL BENEFIT - COST RATIO: 1.3 to 1 at 2-7/8 percent (FY 1964).

BASIS OF BENEFIT-COST RATIO: Benefits are based on Supplement No. 3, Design Memorandum No. 2, approved in July 1984 at 1 October 1983 price levels.

1115

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$ 67,900,000	Entire Project	90	Sep 1991
Estimated Non-Federal Cost		26,200,000			
Cash Contribution	$ 5,575,000				
Other Costs	20,625,000				
Total Estimated Cost		$ 94,100,000			

Division: South Pacific District: Sacramento Walnut Creek, California

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$ 59,482,000	
Conference Allowance for FY 1990	3,618,000	
Allocation for FY 1990	3,618,000 1/	
Allocations through FY 1990	63,100,000	93
Allocation Requested for FY 1991	$ 4,800,000	100
Scheduled Balance to Complete After FY 1991	0	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $349,000 assigned as savings and slippage, $37,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $386,000 reprogrammed to the project.

PHYSICAL DATA

Levees: Average Height - 6 feet
Length - 13.8 Miles

Flood Control Structures:
Two Drop Structures
Two Energy Dissipating Structures (Stilling Basins)

Relocations: R.R. Bridges - Two ($935,000)

Channel Improvements:
Unlined Earth Channel - 6.3 Miles
Covered Channel - 1.7 Miles
Concrete Lined Channel - 9.7 Miles
Rock Lined Channel - 4.1 Miles

Design Capacities:
Walnut Creek -
Suisun Bay to Grayson Cr. - 25,000 c.f.s.
Grayson Cr. to Pine Cr. - 22,500 c.f.s.
Pine Cr. to Head of Walnut Cr. - 22,000 c.f.s.
San Ramon Cr. at Walnut Cr. 15,200 c.f.s.
Pine Cr. at Walnut Cr. - 9,300 c.f.s.
Pine Cr. above Galindo Cr. - 5,850 c.f.s.
Galindo Cr. at Pine Cr. - 3,850 c.f.s.
Upper Pine Cr. - 1,250 c.f.s. to 6,300 c.f.s

JUSTIFICATION: The project will provide flood protection to residential, commercial, and agricultural lands within and adjacent to the urban and suburban areas of Walnut Creek (population 62,600), Concord (population 110,100), Pacheco and Vine Hill (population 6,800), and Pleasant Hill (population 31,750). Land use is rapidly evolving from agricultural use to suburban because the area is within commuting distance of the San Francisco Bay Area. The area to be protected comprises about 6,670 acres, with a total estimated value of approximately $2.1 billion for land and improvements and a population of about 123,000. The flood of February-April 1958, the largest of record, caused damages on the main stem estimated at $1.6 million. On the basis of current conditions of development and price levels, these damages would amount to about $10.4 million, all of which would be preventable by the project. Average annual benefits, based on October 1983 price levels, are as follows:

Annual Benefits	Amount
Flood Control	$14,050,000
Land Enhancement	1,350,000
Total	$15,400,000

FISCAL YEAR 1991: The requested amount will be applied to complete project construction as follows:

Complete Recreation Facilities	$ 80,000
Complete Channel Improvements for Reach 3 San Ramon Bypass & Walnut Creek	4,050,000
Initiate and Complete Erosion Control	200,000
Engineering and Design	100,000
Supervision and Administration	370,000
Total	$4,800,000

NON-FEDERAL COSTS: Local interests are required to make a cash contribution to the United States in the amount of 7.4 percent of the cost of construction; furnish all lands, easements, and rights-of-way for construction; accomplish alterations and relocations except railroad facilities; and maintain and operate each effective element of the work after completion of that element and all works after completion thereof. The non-Federal sponsor must comply with the requirements listed below.

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights-of-way.	$ 9,150,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities where necessary in the construction of the project.	10,855,000	

1117

Division: South Pacific District: Sacramento Walnut Creek, California

29 JAN 1990

Requirements of Local Cooperation (Continued)

Provide channel cover - Broadway Avenue to Capwell's Conduit on San Ramon Creek.	120,000	
Provide channel dredging - Redredging of Walnut Creek from Suisun Bay to Concord Avenue.	500,000	
Pay 7.4 percent of the construction costs allocated to flood control, and bear all costs of operation, maintenance, and replacement of flood control facilities.	5,400,000	$373,000
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	175,000	57,000
Total Non-Federal Costs	$26,200,000 1/	$430,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

1/ Local interests expended approximately an additional $3,000,000 for flood control in the project area during the period 1955-1965. In addition, local developers have made channel improvements for Upper Pine Creek valued at $5,050,000.

STATUS OF LOCAL COOPERATION: The State of California officially adopted the project by Chapter 211 of the Statutes of 1961. Satisfactory assurances of local cooperation, including evidence of financial and legal ability to fulfill the requirement for the cash contribution were received from the Contra Costa County Flood Control and Water Conservation District (CCCFCWCD) on 28 March 1963. Required cash contributions totaling $4,755,000 have been furnished to the Corps through Fiscal Year 1989 to cover local interest costs. A Local Cooperation Agreement for the added recreation purpose will be executed with the City of Walnut Creek prior to construction. The current non-Federal cost estimate of $26,200,000 for the entire project is an increase of $500,000 from the estimate of $25,700,000 last presented to Congress. The cash contribution of $5,575,000 included in the estimate, is an increase of $415,000 over the last estimate of $5,160,000 and is due to increase in the Federal construction cost for flood control and increase in cost for recreation. CCCFCWCD acknowledges this increase in costs and continues to be financially able to participate in the project. The City of Walnut Creek has agreed to share the added cost of recreation with CCCFCWCD and the Federal Government, and a Local Cooperation Agreement is currently being finialized for signing.

1118

COMPARISON FEDERAL COST ESTIMATES: The current Federal cost estimate of $67,900,000 is an increase of $4,800,000 from the latest estimate ($63,100,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ -280,000
Design Changes	100,000
Post Contract Award and Other Estimating Adjustments	4,980,000
Total	$4,800,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statements were filed for Walnut and San Ramon Creeks on 13 August 1984, and for Upper Pine Creek on 24 December 1985.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1962 and funds to initiate construction were appropriated in the FY 1964.

Contra Costa County Flood Control and Water Conservation District and the City of Walnut Creek requested that recreation be added as a project purpose and will share costs in accordance with the Water Resources Development Act of 1986. The Design Memorandum for recreation has been approved and the Post Authorization Change report was approved 22 March 89.

27-138 O—90—36

1119

APPROPRIATION TITLE: Construction, General - Local Protection (Flood Control)

PROJECT: Wildcat and San Pablo Creeks, California (Continuing)

LOCATION: The project is located on the east side of San Francisco Bay in the vicinity of San Pablo and Richmond, Contra Costa County, California, about 20 miles northeast of San Francisco, California.

DESCRIPTION: The project consists of 16,700 lineal feet of channel and levee work on Wildcat Creek and 11,700 lineal feet of channel and levee work on San Pablo Creek. Improvements include open, concrete and rock channels and levees, culverts and a sediment basin. Additionally, about 32 acres will be planted for mitigation of fish and wildlife impacts.

AUTHORIZATION: Section 201 of the 1965 Flood Control Act (Authorized 1976) (See Other Information)

REMAINING BENEFIT-REMAINING COST RATIO: 1.6 to 1 at 6-7/8 percent.

TOTAL BENEFIT-COST RATIO: 0.82 to 1 at 6-7/8.

INITIAL BENEFIT-COST RATIO: 1.2 to 1 at 6-7/8 percent (FY 1980)

BASIS OF BENEFIT-COST RATIO: Benefits are from Supplement No. 2 to the General Design Memorandum No. 1, dated May 1988 at October 1987 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$25,400,000	Reach 1	90	Sep 1992
Scheduled Construction	$15,738,000		Reach 2	0	Unscheduled
Unscheduled Construction	9,662,000		Entire Project	55	Unscheduled
Estimated Non-Federal Cost		16,300,000			
Scheduled Construction	11,290,000				
Cash Contribution	$ 1,350,000				
Other Costs	9,940,000				
Estimated Non-Federal Cost					
Unscheduled Construction	5,010,000				
Cash Contribution	770,000				
Other Costs	4,240,000				

1120

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Total Estimated Scheduled Construction Cost	27,028,000	
Total Estimated Unscheduled Construction Cost	14,672,000	
Total Estimated Project Cost	41,700,000	
Allocations to 30 September 1989	11,538,000	
Conference Allowance for FY 1990	1,000,000	
Allocation for FY 1990	865,000 1/	
Allocations through FY 1990	12,403,000	49
Allocation Requested for FY 1991	1,700,000	56
Scheduled Balance to Complete After FY 1991	1,635,000	
Unscheduled Balance to Complete After FY 1991	9,662,000	

1/ Reflects reduction of $96,000 assigned as savings and slippage, $10,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $29,000 reprogrammed from project.

1121

PHYSICAL DATA

Wildcat Creek Channel Improvements		
Channel Excavation & Levee Improvements	6,000	L.F.
Rectangular Concrete Channel	1,300	L.F.
Open Trapezoidal Concrete Channel	8,000	L.F.
Concrete Box Culvert	800	L.F.
Sediment Basin	600	L.F.
Total Improvements	16,700	L.F.

San Pablo Creek Channel Improvements		
Channel Excavation & Levee Improvements	9,100	L.F.
Rectangular Concrete Channel	1,400	L.F.
Reinforced Concrete Box	1,200	L.F.
Total Improvements	11,700	L.F.
Design Capacities:		
Wildcat Creek	2,300	c.f.s.
San Pablo Creek	5,100	c.f.s.

JUSTIFICATION: Wildcat and San Pablo Creeks flow through the cities of San Pablo and Richmond and the unincorporated area of North Richmond. Development of the basins consists of densely populated residential, commercial and industrial areas, mostly in the lower reaches. The 1988 population of the combined basins was approximately 115,000, of which 80 percent live in San Pablo Creek basin and 20 percent live in Wildcat Creek basin. Present value of improvements in the area to be protected is $310 million. Flooding within the urban area and lower reaches on Wildcat and San Pablo Creeks occurs almost every year as a result of sinuous alignment, insufficient channel capacities, debris jams, and inadequate culverts and bridges. Severe floods have occurred eight times in the last 28 years, approximately once every three years. The flood of record, estimated to be a 30 year event, occurred in January 1982 and caused damages of about $2.7 million. If this were to occur today, damages would be about $3.6 million. The project will provide a high degree of flood protection, protect human life, reduce flood damage to residential and commercial and industrial property and permit development of recreational areas. Average annual benefits, based on October 1987 price levels, are estimated at:

Annual Benefits	Amount
Flood Control	$2,270,000
Recreation	30,000
Total	$2,300,000

FISCAL YEAR 1991: The requested amount will be used as follows:

Initiate Reach 1 Contract 3A Channel Improvement on San Pablo Creek	$ 960,000
Initiate Construction of Recreation Facilities	50,000
Complete Reach 1 Contract 3 Channel Improvement on Wildcat Creek	170,000
Engineering and Design	310,000
Supervision and Administration	210,000
Total	$1,700,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986 the non-Federal sponsor must comply with the requirements listed below.

1122

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 7,650,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project	6,530,000	
Pay one-half of the separable costs allocated to recreation and bear all costs of operation, maintenance, and replacement of recreation facilities.	50,000	$ 1,000
Pay 5 percent of the costs allocated to flood control and bear all costs of operation, maintenance, and replacement of flood control facilities.	2,070,000	144,000
Total Non-Federal Costs	$16,300,000	$145,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: A flood control Local Cooperation Agreement satisfying all requirements of Section 221, Flood Control Act of 1970 (Public Law 91-611) and consistent with the Water Resources Development Act of 1986 (Public Law 99-662), was executed on 20 June 1986 between the Department of the Army and the Contra Costa County Flood Control and Water Conservation District. By Resolution No. 1985-12-351, adopted 17 December 1985, the East Bay Regional Park and Recreation District stated support for development of trail and recreational improvements for the project and indicated its intent to share in 50 percent of the cost of such improvements and perform the operation and maintenance responsibility. A recreation Local Cooperation Agreement will be required prior to initiation of that construction. The current non-Federal cost estimate of $16,300,000, which includes a cash contribution of $2,120,000, is an increase of $5,050,000 from the non-Federal cost estimate of $11,250,000 noted in the Local Cooperation Agreement, which included a cash contribution of $1,437,500. The increase is due primarily to price level increases over the interim time period, increases in engineering and design and construction and management due to reanalysis of Reach 2 and increases in non-Federal lands and relocations. The non-Federal sponsor acknowledges the escalated costs and continues to be financially capable of participating in the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $25,400,000 is an increase of $2,200,000 from the latest estimate ($23,200,000) submitted to Congress (FY 1990). This change includes the following items.

Item	Amount
Price Escalation on Construction Features	$ 400,000
Post Contract Award and Other Estimating Adjustments	1,800,000
Total	$2,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 7 June 1976. A revised Final Environmental Impact Statement was filed on 28 March 1986. A Supplement to the Environmental Impact Statement will be required to document changes in Reach 2.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1977 and for construction in FY 1980.

More detailed design studies and floodplain analysis of the upstream San Pablo and Wildcat Creeks (Reach 2) indicate the worklimits may have to extend upstream to provide 100 year protection to the area. A Decision Paper will be completed in March 1990 to determine economic feasibility of continuing the project in Reach 2. A supplement to the General Design Memorandum and the Environmental Impact Statement will be required to document changed floodplain condition and design if the Decision Paper indicates a feasible project for Reach 2.

In 1976 when the project was authorized, the Federal cost ceiling for projects authorized under Section 201 of the Flood Control Act of 1965 was $10 million. The current Federal project cost estimate even when discounted for inflation, exceeds the cost limit. However, the discounted total Federal cost to complete Reach 1 as currently designed and Reach 2 as originally formulated is less than $10 million. Additionally, Reach 1 will function independently as a separately useable hydrologic unit. Therefore, we will complete Reach 1 as scheduled. Reach 2 is unscheduled, pending identification of a feasible plan and authority for construction.

1124

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Little Dell Lake, Utah (Continuing)

LOCATION: The project is located about 8 miles east of Salt Lake City, on Dell Creek upstream of Mountain Dell Reservoir in Salt Lake County, Utah.

DESCRIPTION: The plan of improvement provides for construction of an earthfill dam 224 feet high, creating a lake with gross storage capacity of 20,500 acre feet for flood control and municipal and industrial water supply. Minimum recreation facilities are included for public health and safety.

AUTHORIZATION: 1960 and 1968 Flood Control Acts and Water Resources Development Act of 1976.

REMAINING BENEFIT-REMAINING COST RATIO: 8.0 to 1 at 3-1/4 percent.

TOTAL BENEFIT-COST RATIO: 2.7 to 1 at 3-1/4 percent.

INITIAL BENEFIT-COST RATIO: 2.2 to 1 at 3-1/4 percent (FY 1985).

BASIS OF BENEIFT-COST RATIO: Benefits are from the General Design Memorandum, Phase II approved in May 1986 at 1985 price levels.

SUMMARIZED FINANCIAL DATA			STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost		$32,700,000	Entire Project	49	Sep 1991
Estimated Non-Federal Cost		24,100,000			
Cash Contributions	$17,500,000				
Other Costs	6,600,000				
Total Estimated Project Cost		$56,800,000			

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Division: South Pacific

District: Sacramento

Little Dell Lake, Utah

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

		ACCUM. PCT. OF EST. FED. COST
Allocations to 30 September 1989	$14,120,000	
Conference Allowance for FY 1990	11,300,000	
Allocation for FY 1990	9,510,000 1/	
Allocations through FY 1990	23,630,000	72
Allocation Requested for FY 1991	$9,070,000	100
Scheduled Balance to Complete After FY 1991	0	
Unscheduled Balance to Complete After FY 1991	0	

1/ Reflects reduction of $1,090,000 assigned as savings and slippage, $116,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $584,000 reprogrammed from the project.

PHYSICAL DATA

Dam:
- Type - Earthfill
- Height - 224 feet
- Length - 1,700 feet

Lands and Damages:
- Acres - 518
- Type - Grazing, Forest, Natural Habitat along River

Lake Capacity:

Permanent Rain Flood Reservation	3,000 ac-ft
Municipal Water Supply and Flood Control Storage	16,500 ac-ft
Inactive Storage	1,000 ac-ft
Gross Storage	20,500 ac-ft

Spillway:
- Type - Detached, Ungated, and Unlined
- Crest Length - 125 feet
- Capacity - 16,500 c.f.s

Relocations:
- Roads - 1.9 miles - $4,000,000
- Pipelines - 10,035 feet - $600,000
- Utility Line - 2.7 miles -$100,000

Recreation:
- Only minimum facilities for public health and safety.

JUSTIFICATION: The project will provide approximately a 500 year level of flood protection to about 1,500 acres of residential, commercial, and industrial property in Salt Lake City. Floods of April - May 1952 and May 1983 caused estimated damages in urban areas of $2.6 million and $10 million, respectively. Under current conditions of development and prices, the 1952 flood damages would amount to about $130 million, most of which would be preventable by the Little Dell Lake project and the 1983 flood damages would have amounted to about $160 million, had there not been an around-the-clock floodfight by a large number of local volunteers. It is estimated that the

project would eliminate all of the flood damages in existing urbanized areas, while providing a supplemental annual water supply of about 2,900 acre-feet for municipal and industrial use for the Salt Lake City area. Current projections indicate the water supply will be urgently needed by 1990. Average annual benefits, based on 1 October 1985 price levels are as follows:

Annual Benefits	Amount
Flood Control	$ 4,850,000
M&I Water Supply	580,000
General Recreation	120,000
Total	$ 5,550,000

FISCAL YEAR 1991: The requested amount will be used to complete construction of the project as follows:

Initiate and Complete Recreation Facilities	$ 30,000
Complete Construction of Reservoir	100,000
Complete Construction of Mitigation Facilities	160,000
Complete Construction of Project Roads	150,000
Complete Construction of the Main Dam and Appurtenances	7,680,000
Complete Construction of Cultural Resources Facilities	130,000
Complete Installation of Permanent Operating Equipment	10,000
Engineering and Design	240,000
Supervision and Administration	570,000
Total	$9,070,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below.

1127

Requirements of Local Cooperation	Payments During Construction and Reimbursements	Annual Operation, Maintenance, and Replacement Costs
Provide lands, easements, rights of way, and dredged material disposal areas.	$ 1,900,000	
Modify or relocate buildings, utilities, roads, bridges (except railroad bridges), and other facilities, where necessary in the construction of the project.	4,700,000	
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	11,700,000	$ 52,000
Pay 13 percent of the costs allocated to flood control to bring the total non-Federal share of flood control costs to 25 percent, and bear all costs of operation, maintenance, and replacement of flood control facilities.	5,800,000	133,000
Total Non-Federal Costs	$24,100,000	$185,000

The non-Federal sponsor has also agreed to make all required payments concurrently with project construction.

STATUS OF LOCAL COOPERATION: By letters dated 22 January 1986 and 24 January 1986, the Metropolitan Water District of Salt Lake City and the County of Salt Lake, respectively, notified the Corps of Engineers of their support and willingness to proceed with a reduced scale project based on their "ability to pay." Consistent with the cost sharing and financing concepts in the Water Resources Development Act of 1986, the local cooperation agreement was executed on 10 June 1986.

The Metropolitan Water District of Salt Lake City issued $14,300,000 in Water Revenue Bonds on 27 August 1986 to finance their portion of the non-Federal project cost. In addition, the county of Salt Lake furnished $6,700,000 towards their portion of local cost sharing. In August 1987, the total of $21.0 million in non-Federal funds was placed in an escrow account. To date, approximately $10.4 million of this total has been forwarded to the Corps for project related relocation costs, and project construction. The current non-Federal cost estimate of $24,100,000, which includes a cash contribution of $17,500,000 is identical to the estimate last presented to Congress but represents an increase of $3,150,000 from the non-Federal cost estimate of $20,950,000 noted in the Local Cooperation Agreement, which included a cash contribution of $15,220,000. The increase is primarily due to costs for highway and utility relocations and related additional cash contribution requirements. The Metropolitan Water District of Salt Lake City and the County of Salt Lake have provided all cash contributions as requested and continue to be financially able to participate in the project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $32,700,000 is identical to the latest estimate ($32,700,000) presented to Congress (FY 1990).

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed with the Council on Environmental Quality on 22 July 1975. A Finding of No Significant Impact and Environmental Assessment addressing changes occurring in the project area since preparation of the Final Environmental Impact Statement was approved by the Environmental Protection Agency on 16 April 1986.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1970. Funds to initiate construction were appropriated in the FY 1985 Supplemental Appropriations Act.

1129

APPROPRIATION TITLE: Construction, General - Multipurpose Projects Including Power

PROJECT: New Melones Lake, California (Continuing)

LOCATION: The project is located on the Stanislaus River about 35 miles northeast of the city of Modesto.

DESCRIPTION: The project consists of a 625 foot high earth and rock fill dam, a reservoir with gross storage capacity of 2,400,000 acre feet for flood control, irrigation, power, recreation fish and wildlife and water quality control features, and a 300,000 kilowatt hydroelectic power plant. The project also includes 16 recreation areas along the Lower Stanislaus River, downstream of the dam.

AUTHORIZATION: 1944 and 1962 Flood Control Acts

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is nearing completion.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT - COST RATIO: 2.2 to 1 at 3 1/8 percent (FY 1966)

BASIS OF BENEFIT-COST RATIO: The benefit-cost ratio was based on the project's fair share of San Joaquin River Basin system benefits.

1130

SUMMARIZED FINANCIAL DATA		
Estimated Total Appropriation Requirements		$394,500,000
Scheduled Construction	$363,151,000	
Unscheduled Construction	31,349,000	
Future Non-Federal Reimbursement		$216,700,000
Scheduled Construction	$216,300,000	
Unscheduled Construction	$ 400,000	
Estimated Federal Cost (Ultimate)		$177,800,000
Scheduled Construction	$146,851,000	
Unscheduled Construction	30,949,000	

	STATUS (1 JAN 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Land and Damages		98	Unsch 1/
Relocations		95	Sep 1991
Reservoirs		100	
Dams		100	
Fish and Wildlife		64	Sep 1990
Powerplant		100	
Roads		100	

1/ Remaining lands and damages and recreation facilities are not scheduled.

SUMMARIZED FINANCIAL DATA (Continued)

				ACCUM. PCT. OF EST. FED. COST
Estimated Non-Federal Cost			$216,300,000	
Scheduled Construction		$216,300,000		
Cash Contribution		0		
Other Costs		0		
Reimbursement		216,300,000		
Irrigation	107,800,000			
Power	108,500,000			
Unscheduled Construction		400,000		
Cash Contribution		0		
Other Costs		0		
Reimbursements		400,000		
Irrigation	300,000			
Power	100,000			
Total Estimated Scheduled Construction Cost			$363,151,000	
Total Estimated Unscheduled Construction Cost			31,349,000	
Total Estimated Project Cost			394,500,000	
Allocations to 30 September 1989			$361,151,000	
Conference Allowance for FY 1990			0	
Allocation for FY 1990			0	
Allocations through FY 1990			361,151,000	91
Allocation Requested for FY 1991			2,000,000	92
Scheduled Balance to Complete After FY 1991			0	
Unscheduled Balance to Complete After FY 1991			31,349,000 1/	

STATUS (CONTINUED) (1 JAN 1990)

	PERCENT COMPLETE	COMPLETION SCHEDULE
Recreation Facilities	98	Unsch 1/
Cultural Resources	100	Sep 1988
Building, Grounds and Utilities	52	Dec 1990
Permanent Operating Equipment	100	
Closure		Aug 1978
Power on Line		Apr 1979
Entire Project	98	Unsch 1/

1/ Remaining lands and damages and recreation facilities are not scheduled. (See OTHER INFORMATION.)

1131

PHYSICAL DATA

Dam: Type - Earth and Rockfill
Height - 625 feet
Length - 1,560 feet

Spillway: Type - Ungated
Broad-Crested Weir
Crest Length - 200 feet
Capacity - 112,000 c.f.s.

Power: Number of Units - 2
Installed Capacity - 300,000 kw
Maximum Head - 583 feet

Lands and Damages: Acres 34,678
Type - Grazing, Forest, Wasteland
Natural Habitat Along River
Improvements - Rural Dwellings and
Ranch Buildings
(Payment for depreciated original cost of existing Melones Powerplant (PG&E Co.) $1,311,000)

Lake Capacity:
Irrigation, Power, Recreation, Fish and Wildlife, Water Quality, and Flood Control Storage (including Flood Control Reservation of 450,000 acre-feet) 2,090,000 ac-ft
Inactive Storage 310,000 ac-ft
Gross Storage 2,400,000 ac-ft

Relocations: Roads - 4.4 miles
(Including 2 bridges, aggregate length about 3,400 feet)(State County, and private) ($31,010,000), Miscellaneous Utilities ($550,000)

JUSTIFICATION: The project is providing urgently needed power to California, a firm irrigation water supply, flow augmentation for fish and wildlife, improvement of water quality for the Stanislaus and San Joaquin Rivers and the Sacramento-San Joaquin Delta, water oriented recreation opportunities at the lake and downstream channel and flood protection on the Stanislaus and Lower San Joaquin Rivers. Flood protection is being provided to about 35,000 acres of highly developed agricultural lands; to suburban areas of Ripon, Oakdale, and Riverbank (combined population 22,500); to two main line railroads and State Highway 99; and to several State and County roads. Flood damages along the Stanislaus River during the 1955 flood amounted to $1,928,000 below the damsite. However, were such a flood to occur under current conditions of development and price damages amounting to $11,830,000 in that area would result, all of which would have been prevented by the project Damages on the San Joaquin River below the mouth of the Stanislaus River and in the Sacramento-San Joaquin Delta during the 1955 flood amounted to $4,115,000. Under current conditions of development and process, these damages would amount to about $26,700,000, of which about $12,470,000 would be prevented by operation of the New Melones Lake Project. During the 1983-84 flood season, damages prevented by the project amounted to about $13,400,000. In conjunction with storage projects on Tuolumne River and authorized levees on Lower San Joaquin River, the project provides flood protection to about 50,000 acres of agricultural land along San Joaquin River below the mouth of the Stanislaus River, about 185,000 acres of intensively cultivated land in the Sacramento-San Joaquin Delta, suburban areas south of the city of Stockton, and numerous commercial and water installations. Coordinated with other reservoirs of the Central Valley Project of Bureau of Reclamation, the project provides about 285,00 acre-feet of new water per year, on the average, for diversion to the local service areas and for export (of water surplus to local needs) to the southern San Joaquin Valley.

1132

FISCAL YEAR 1991: The requested amount of $2,000,000 will complete the scheduled construction and will be applied as follows:

Initiate and Complete Parrotts Ferry Bridge Mid-Span Deflection Repair	$ 1,500,000
Complete Reservoir Area Administration Building	355,000
Engineering and Design	45,000
Supervision and Administration	100,000
Total	$ 2,000,000

NON-FEDERAL COSTS: Local interests are required to reimburse the Federal Government for costs allocated to irrigation. Reimbursable first cost for irrigation is estimated at $108,100,000. Reimbursable portion of annual maintenance, operation, and replacement costs for irrigation is estimated at 530,000. Costs allocated to power are also reimbursable. The capital cost allocated to power is estimated at $108,600,000 and allocated annual operation maintenance and replacement (OM&R) costs are estimated at 1,710,000. Information furnished by the Bureau of Reclamation indicates that estimated revenues are sufficient to recover these capital costs plus interest and annual costs of OM&R within the administratively determined repayment period of 50 years. In addition, local interests have expended $300,000 for levees along the lower reaches of the Stanislaus River.

STATUS OF LOCAL COOPERATION: Recovery of costs allocated to irrigation and power is the responsibility of the Bureau of Reclamation. Reimbursement of costs is in accordance with the Bureau's policies and procedures for the Central Valley Project.

Local interests are required to maintain private levees and to prevent encroachment on the existing channel and floodway between the levees on the Stanislaus River from Goodwin Dam to the San Joaquin River. The State of California officially adopted this project by Chapter 918 of the Statutes of 1963, and by Chapter 1438 of those statutes authorized the State Reclamation Board to furnish assurances satisfactory to the Secretary of the Army that these local cooperation requirements will be met. By letter dated 6 January 1983 the State Reclamation Board provided formal assurances of local cooperation.

1133

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $394,500,000 is an increase of $9,500,000 from the latest estimate ($385,000,000) presented to Congress (FY 1988): This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,250,000
Authorized Modifications	5,800,000
Post Contract Award and Other Estimating Adjustments	2,100,000
Price Escalation of Real Estate	350,000
Total	$ 9,500,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Environmental Impact Statement was filed on 17 July 1972. A Final Supplement concerning the relocation of Camp Nine Road was filed on 18 March 1977.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1964 and for initial construction in FY 1966.

A Memorandum of Understanding between the Department of the Interior and the Department of the Army transferring the New Melones Dam and reservoir from the Corps of Engineers to the Bureau of Reclamation was executed on 20 November 1979. The agreement provides that the Corps complete land acquisition actions and retain budgeting, design and construction responsibility for remaining construction. The Corps retains operation and maintenance responsibility for the lower Stanislaus River downstream of the dam.

Remaining recreation facilities are not scheduled pending development of cost sharing agreements with local interests for construction and non-Federal operation and maintenance, consistent with projects for which recreation facilities are being constructed under the provisions of the Federal Water Project Recreation Act of 1965 (PL 89-72), as amended.

1134

SOUTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION

a. Channels and Harbors

The program request of $33,909,000 provides for essential maintenance work on 26 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels of coastal harbors and waterways by means of dredging, snagging, bank protection, breakwater and jetty repairs, and operation and repair of navigation facilities, as authorized in the laws adopting river and harbor projects.

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
CALIFORNIA				
Bodega Bay	0	0	795,000	Periodic dredging in FY 91.
Channel Islands Harbor	3,058,000	94,000	3,421,000	Periodic dredging in FY 89 and FY 91.
Crescent City Harbor	1,208,000	216,000	130,000	Monitor breakwater repairs in FY 89.
Humboldt Harbor and Bay	857,000	3,036,000	4,177,000	Variation of dredging requirements FY 89, FY 90 and FY 91; breakwater repairs in FY 91.
Los Angeles-Long Beach Harbor Model	870,000	479,000	155,000	Upgrade model in FY 89 and FY 90.
Marina del Rey	146,000	148,000	1,700,000	Periodic dredging in FY 91.
Morro Bay Harbor	188,000	859,000	1,025,000	Periodic dredging in FY 90 and FY 91.
Noyo River and Harbor	68,000	805,000	613,000	Breakwater repairs in FY 90 and FY 91.
Oakland Harbor	1,999,000	1,754,000	2,091,000	Variation in dredging requirements.
Oceanside Harbor	104,000	594,000	65,000	Periodic dredging in FY 90.
Port Hueneme Harbor	0	115,000	802,000	Periodic dredging in FY 90 and FY 91.
Port San Luis	0	0	1,288,000	Breakwater repairs in FY 91.
Richmond Harbor	2,584,000	1,737,000	2,176,000	Variation in dredging requirements.

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SOUTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION (Cont'd)

a. Channels and Harbors (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
CALIFORNIA (Cont'd)				
Sacramento River (30 ft Project)	106,000	512,000	2,115,000	Variation in dredging requirements.
Sacramento River Shallow Draft Channel	82,000	75,000	70,000	Periodic inspection in FY 89.
Sacramento River and Tributaries (Debris Control)	639,000	671,000	721,000	
San Diego River and Mission Bay	87,000	30,000	877,000	Restore revetment in entrance channel in FY 91.
San Francisco Bay-Delta Model Structure	1,900,000	1,651,000	2,323,000	Rehabilitate visitor center displays in FY 89; upgrade model in FY 91.
San Francisco Harbor	1,245,000	3,990,000	1,530,000	Disposal management program in FY 90.
San Joaquin River	55,000	876,000	1,385,000	Variation in dredging requirements.
San Pablo Bay and Mare Island Strait	1,069,000	1,034,000	2,566,000	Variation in dredging requirements.
San Rafael Creek	0	0	980,000	Periodic dredging in FY 91.
Santa Barbara Harbor	167,000	1,027,000	750,000	Variation in dredging requirements.
Suisun Bay Channel	248,000	1,148,000	859,000	Variation in dredging requirements.
Ventura Harbor	927,000	1,179,000	1,270,000	Variation in dredging requirements.
Yuba River	36,000	55,000	25,000	Repair of training structure in FY 90.
Other Projects Maintained Periodically	5,756,000	7,228,000		
TOTAL - Channels and Harbors	23,399,000	29,313,000	33,909,000	

1136

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION (Cont'd)

b. Locks and Dams - None

TOTAL - NAVIGATION	23,399,000	29,313,000	33,909,000

2. FLOOD CONTROL

a. Reservoirs

The program request of $23,552,000 provides for the operation and maintenance of 20 flood control projects and scheduling of flood control reservoir operations at operating publicly owned and Bureau of Reclamation projects in the Division. The request also includes the requirements for operation and maintenance of recreation facilities at reservoir projects. The amount requested is necessary for operation and ordinary maintenance of project facilities; labor, supplies, replacements; and contract law enforcement. The requested amount also includes construction of cost-shared recreation facilities at completed projects and application of special recreation use fees for recreation areas.

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
ARIZONA				
Alamo Lake	770,000	1,511,000	750,000	Repair outlet works in FY 90.
Painted Rock Dam	715,000	762,000	605,000	Elevator rehabilitation in FY 90.
Whitlow Ranch Dam	50,000	72,000	68,000	
CALIFORNIA				
Black Butte Lake	1,184,000	1,418,000	1,394,000	Renovation of public use facilities and acquisition of water control data system in FY 90.
Buchanan Dam - H. V. Eastman Lake	1,196,000	1,236,000	1,274,000	

29 JAN 1990

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SOUTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL (Cont'd)

a. Reservoirs (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
CALIFORNIA (Cont'd)				
Coyote Valley Dam (Lake Mendocino)	1,488,000	1,631,000	1,663,000	
Dry Creek (Warm Springs) Lake and Channel	2,254,000	2,000,000	2,431,000	Increased cost for service contracts and first year full operation of Warm Springs Dam recreation area in FY 91.
Farmington Dam	95,000	124,000	221,000	Periodic inspection in FY 90; installation of weir at gaging station in FY 91.
Hidden Dam - Hensley Lake	1,129,000	1,143,000	1,271,000	
Isabella Lake	2,082,000	2,140,000	2,092,000	
Los Angeles County Drainage Area	6,604,000	4,500,000	2,129,000	Development of recreation facilities including a recreation lake at Sepulveda Dam in FY 89 and FY 90.
Merced County Stream Group	120,000	125,000	187,000	Acquisition of water control data system in FY 91.
Mojave River Dam	227,000	678,000	184,000	Repair outlet tunnel in FY 90.
New Hogan Lake	1,593,000	1,228,000	1,673,000	Renovation of public use areas in FY 89; replace storage building in FY 91.
Pine Flat Lake	1,374,000	1,464,000	1,972,000	Increased costs for service contracts and repave road at Island Park campground in FY 91.
Santa Ana River Basin	1,905,000	2,175,000	1,982,000	Water conservation study at Prado Dam in FY 90.

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29 JAN 1990

SOUTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL (Cont'd)

a. Reservoirs (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
CALIFORNIA (Cont'd)				
Success Lake	1,153,000	1,203,000	1,408,000	Acquisition of water control data system in FY 91.
Terminus Dam (Lake Kaweah)	943,000	1,137,000	1,216,000	Periodic maintenance of hydrologic automatic data acquisition system in FY 90; acquisition of water control data system in FY 91.
NEVADA				
Martis Creek Lake Nevada and California	260,000	331,000	381,000	Periodic maintenance of hydrologic automatic data aquisition system in FY 90; periodic inspection in FY 91.
Pine and Mathews Canyons Lakes	105,000	73,000	87,000	
Scheduling of Flood Control Operations	766,000	703,000	564,000	Environmental and operation studies to assess modification of the flood control operations at Folsom Dam and Lake in FY 89 and FY 90.
TOTAL - Reservoirs	26,015,000	25,654,000	23,552,000	

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL (Cont'd)

b. Channel Improvements, Inspections and Miscellaneous Maintenance

The program request of $2,238,000 provides for the inspection of completed works during the budget year.

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
Inspection of Completed Works	1,961,000	2,378,000	2,238,000	
Inspection of Completed PL 84-99 Works	10,000	7,000		Activity transferred to the Flood Control and Coastal Emergencies Appropriation in FY 89. FY 89 and FY 90 funds were carried over from FY 88.
TOTAL - Channel Improvements, Inspections and Miscellaneous Maintenance	1,971,000	2,385,000	2,238,000	
TOTAL - FLOOD CONTROL	27,986,000	28,039,000	25,790,000	

3. MULTIPLE PURPOSE POWER PROJECTS

The program request of $751,000 for the operation and maintenance of the channel below the multiple purpose New Melones Lake project provides the amount for operation requirements of recreation and natural resource facilities along the Stanislaus River downstream of the dam. The amount requested is necessary for operation and maintenance of downstream channel facilities; labor, supplies, materials, and parts required for the day-to-day functioning of the channel project.

1140

Mr. BEVILL. Well, the man who has played such a leading role in all this development and growth of California is here, and I'm just going to recognize him.

The Chair recognizes Congressman Fazio.

CHAIRMAN BEVILL'S SUPPORT

Mr. FAZIO. Thank you, Mr. Chairman.

I'm not sure how many people currently want to be known for promoting more growth in California. It's sort of a mixed bag out there at the moment.

But I want to thank you, Mr. Chairman, for your attentiveness to our concerns. I know you personally have been out there a number of times, looking at some of the projects and interests that are presented in this division's proposals today.

I particularly want to thank you for your interest in the port development issues up and down the State—Los Angeles and Long Beach as well as in Oakland and the Bay Area generally.

Mr. BEVILL. I've told them out there, they'd better not invite me if they don't want me to come, because I always go to California every time I'm invited.

Mr. FAZIO. We're glad to have you, whether it be for the World Series or any other reason. I know that you've been very aware of our problems in the Sacramento area with flooding, too, and I thank you for your trips up there.

General Sobke, it's good to see you and see your staff— Larry and Ed and others who I know are behind you.

I want to thank you for an excellent job that you're doing with the wide diversity of problems that you have to cope with, some of which are complicated by this growth-no growth struggle that goes on in our State.

EARTHQUAKE RESPONSE

I want to thank you on behalf of the entire delegation for the work that the Corps did on the Loma Prieta earthquake. You really—as your statement reflects—had to drop everything and jump in and do what you could to add to the total Federal presence in the Bay Area, and I think we all appreciate the generally good results that all of the various Federal agencies have been able to produce there.

SACRAMENTO AND AMERICAN RIVERS

I wanted to begin by bringing a little clearer focus on the question of flooding in the Sacramento area, the Auburn structure, the question of levee improvements on the Sacramento and the American Rivers.

Could you give the committee a feel for the consensus that is emerging out there? We have had a wide-ranging list of alternatives, points of view, and philosophies, over the last 20 or 25 years on Auburn Dam, for example.

Since the 1986 flood, there has been a great deal more sensitivity to the question of flood protection for hundreds of thousands of people and billions and billions—I think over $16 billion—of assessed valuation.

Could you tell us what you see the Corps producing, in terms of a consensus?

General SOBKE. Yes, sir, I can. The Sacramento District produced a rather excellent alternatives paper in December of 1989. What that paper really did was to present the possibilities for pursuing flood control in the Sacramento area to increase the protection from flooding that we face out there. The 1986 event was certainly not the biggest event that could be faced.

AUBURN DAM

That paper was assessed by a couple of different agencies. The first one, I would say, is that the Sacramento Area Flood Control Agency, which has 13 members representing local governments and public agencies, voted 12 to 1 on February 8, 1990, to support what is called an expandable dam at Auburn. Other alternatives would have been a dry dam only, no dam at all, increasing capacity at Folsom, lowering the spillway crest at Folsom, and a stageable dam with some features already built in.

They supported the notion of an expandable dam, which has the capability to ultimately achieve multiple uses to accommodate water supply, hydropower and other uses.

Following that, on 16 February 1990, the State of California Reclamation Board voted unanimously to support the notion of an expandable dam. So with that particular consensus emerging from important constituents out there, and important bodies, we see that the expandable dam is probably the one that the community will ultimately accept, sir.

STUDY SCHEDULE

Mr. FAZIO. What will be required of the Corps, both regionally and nationally, in order to stay on schedule? As you know, we have a window of opportunity to get through here—one that gives us the ability to maintain reasonable flood insurance rates by showing that we have an authorized project, hopefully, and that we are making progress in appropriating funds, under the Brooks Act. Can you tell us what the next schedule would be for the Corps?

General SOBKE. Yes, sir. At this time, we are on a very fast track, closely controlled, closely scheduled, to complete two feasibility studies in the Sacramento area: the Sacramento Metropolitan Area study and the American River study, which are both scheduled to be completed in January of 1991.

And from there, we would hope to move immediately into preconstruction engineering and design, and move toward, hopefully, an early authorization for those projects. Those studies are actually being merged, sir, into one project—the American and Sacramento Rivers project, which will consist of the levee improvements and upstream storage at the Auburn site.

Mr. FAZIO. Well, I again want to thank the Corps at every level for the way in which it has proceeded on this. I am not sure that the local people can measure the speed with which all this has been accomplished in relation to other projects, but I do not think we have missed a beat in terms of moving this whole feasibility study and follow-on studies along, and I really want to thank all of

the people who work for the Corps in your office in Sacramento, and certainly here in Washington, for keeping on schedule.

General SOBKE. Thank you, sir. We are committed to keeping that schedule.

POTENTIAL MITIGATION NEEDS

Mr. FAZIO. Could you tell us what environmental problems you might envision would impact us and slow us down, particularly in light of the decision not to proceed with the dam in Colorado.

I'm very sensitive to where EPA may be coming from. Are there issues related to wetlands that might arise, given our no net loss admonition from the President that need to be addressed?

General SOBKE. Yes, sir, there are, and I would say that our EIS—which we will have a draft of sometime in August of this year—will address—we're right now focusing on addressing the notion of an expandable dam. That will not account for those particular components of the dam that may be put in later on, so I will say that our addressing of wetlands issues will be somewhat limited. I wish I could give you some notion of the mitigation that would be required for any wetlands that we may be impacting on, but I just don't have a figure for that right now. We will develop that as we move toward the summer time period. We are looking for that draft in August of 1990, sir.

YOLO BYPASS

Mr. FAZIO. On a related project, you currently intend to complete the feasibility study for Northern California Streams, the Yolo Bypass project, in September of 1994. That schedule would not permit Congressional consideration of an authorization until 1996. I am wondering if it is possible to accelerate that work, so it could be factored into this entire regional flood control project? They are in some ways related, and of course there are adjoining levees on the banks of the river as it flows through the region, with Yolo County on the west and Sacramento on the east.

Are there any Federal funding requirements that would be necessary to enable the Corps to accelerate that schedule that you could give us at this time?

General SOBKE. Sir, I would say that we will finish our reconnaissance study in June of 1991. About the best that I can give you is that, recognizing the date that we have for the completion of feasibility, if there is any way that we can accelerate that schedule and permit an early authorization of that particular project, I commit to you the same kind of commitment that we have had on the other portions of flood control activities in the Sacramento area.

Mr. FAZIO. It does make sense to try to telescope all of these studies into one consistent and sizable authorization doesn't it?

General SOBKE. Yes, sir.

Mr. FAZIO. With a very healthy cost benefit ratio, I might add, in totality.

General SOBKE. Yes, sir.

MORRISON CREEK

Mr. FAZIO. Yes. I appreciate your remarks in that regard.

I am not going to ask any questions on Morrison Creek. I would, however, urge the Corps to review the flood threat posed by the Morrison Creek area in southern Sacramento County. I am hopeful that you can consider responses from the local government there, in the next couple of months, so that you could begin to look at a reasonable project in that area somewhere down the road.

General SOBKE. Yes, sir. We have a request from the city of Sacramento that we open up a larger study in that area. We have two small projects down there now, but we are ready to take a look at their request.

Mr. FAZIO. I appreciate that.

I have a question for the record on that.

[The information follows:]

MORRISON CREEK, CA

Mr. FAZIO. A member of local officials believe there is a need to provide new funds to the Morrison Creek study project due to the rapidly developing communities in the area from the Pocket south to Elk Grove. In the late 1980's, thousands of homes have been built in the area and still more are proposed. And while the 1986 flood was considered a 70-year storm along the American River, it was only a 20-year storm on Morrision Creek. So, I urge that you take another look at this project and report back to the Subcommittee on the need, if one exists, to restart work on this project in Fiscal Year 1991.

General SOBKE. Sir, the study would include a reanalysis of Morrison Creek as well as Laguna, Elder, and Unionhouse Creeks. The scope and level of detail of this investigation would warrant a new General Investigations level analysis. A reconnaissance study could be accomplished under the broad basin authority for study of the Northern California Streams included in the Flood Control Act of 1962. A formal request for assistance is required from the local sponsors. It is estimated that the reconnaissance study would require about one year and $500,000 to complete.

FAIRFIELD VICINITY STREAMS

Mr. FAZIO. On Fairfield Streams, we have worked together very closely through the years to bring that project to completion. We are not quite there.

I note that there is a reprogramming request of slightly over $1 million from the project for Fiscal Year 1990. I wondered what the justification for the slowdown in construction is, and when you might anticipate completing construction? I know my constituents would rather not have another rainy winter go by without having the project completed.

General SOBKE. We were slowed down because of negotiations with the Southern Pacific Transportation Company, a railroad, with regard to relocating a railroad bridge in the northern part of that project. Those negotiations have now been completed, and so we are scheduled to complete the project in September of 1992. And that was the reason why we had to delay that.

Mr. FAZIO. There is no way to get it done for 1991 at this point?

General SOBKE. No, sir. I see no way to get it done.

Mr. FAZIO. We have had several droughts out there, and we are due for a rainy year. Let us just hope we do not get it the last year before the project is completed.

General SOBKE. Well——

Mr. FAZIO. I guess we can blame it on the railroad?

General SOBKE. I am not going to touch that one.

Mr. FAZIO. Everybody else does—you might as well.

CACHE CREEK OUTLET CHANNEL

With regard to the Cache Creek—I understand that the question of that project's economic feasibility is now up in the air. In fact, I have heard that the new estimates of the cost to complete the outlet channel at the northern end of the project have now exceeded the authorized amount to the degree that this project is back to square one. Would you want to comment on that?

General SOBKE. Sir, we have run our cost estimates on that project. Costs have generally gone up, both in terms of the quantities that we originally estimated and in terms of unit prices that are in the original estimate, to the point where that project now is up in the neighborhood of $30 million. And that does not account for between $1 million and $7 million worth of mitigation lands that would have to be included in the cost of the project.

So our economic analysis at this point in time puts the benefit-to-cost ratio somewhere between 0.6 and 0.5. Now, of course, what we have done is to go on and look at other alternatives. We went back to the originally scoped project, which included a bypass channel around to the south, and while the economics of that are better, the best we can achieve is a 0.92 benefit-to-cost ratio. So it looks at this point in time like that project is not economically viable. We do not know what the solutions might be, if there are any. We intend to complete the GDM sometime in early summer.

Mr. FAZIO. At that point, I assume you will sit down with all the interested parties and try to determine if there is a new course to take?

General SOBKE. Yes, sir, we are doing that now.

Mr. FAZIO. I assume that Congressman Bosco will have an interest in this, since he was the original authorizer. And I know that you are sensitive to the concerns of my constituents, who fear further bank erosion and other issues that they, of course, are concerned cannot be adequately mitigated. So we are looking forward to working with the Lake County people. We know that they have a problem. But we also appreciate the Corps' temperate and deliberate approach to this, until we can find a solution that we all can live with.

General SOBKE. We are committed to that, sir.

GLENN-COLUSA IRRIGATION DISTRICT

Mr. FAZIO. I wanted to highlight for the record some questions regarding the Glenn-Colusa Irrigation District. I do not think that we need to get into that at the moment, but I will have a number of questions for the record.

[The information follows:]

SACRAMENTO RIVER FLOOD CONTROL PROJECT (GCID)

Mr. FAZIO. General, it is noted that no funds are being requested for the Sacramento River Flood Control, GCID, gradient restoration project. What has been accomplished with the funds provided for Fiscal Year 1990, and what is your schedule for completion of this project?

General SOBKE. Sir, design studies are currently underway and we have scheduled the design work for the project to be completed in June 1991.

Mr. FAZIO. General, will the Preconstruction Engineering and Design be completed with the $500,000 provided in Fiscal Year 1990, or will additional funds be needed in Fiscal Year 1991?

General SOBKE. Sir, Preconstruction Engineering and Design work can be completed with the funds which have been provided.

Mr. FAZIO. When will all PED work and the necessary environmental documentation be completed and the construction be ready to proceed?

General SOBKE. Sir, all Preconstruction Engineering and Design effort as well as environment documentation is scheduled for completion in June 1991.

Mr. FAZIO. General, is Fiscal Year 1992 the earliest that the Corps of Engineers could utilize funds for construction of the river restoration structures?

General SOBKE. Sir, under our normal budgetary funding process, the project could not be considered for construction before Fiscal Year 1992. However, the project will be ready for construction upon completion of PED in June 1991.

COMMITTEE INTEREST

Mr. FAZIO. I know the committee is interested in the fact that this was not in the budget this year, and retains its concern that the project move forward. I will just leave it at that.

SACRAMENTO-SAN JOAQUIN DELTA

I wondered if you could tell us, as it relates to the Sacramento-San Joaquin Delta feasibility study—what is the Corps' involvement there, and what is the potential for accelerating that study?

General SOBKE. Sir, we are participating with the Department of Water Resources, with Mr. Dave Kennedy's outfit, in a joint effort to—on their part, study the potential for further transfer of water supply from north to south, and at the same time, coincident with that, dovetail in our effort, to ensure that we provide for flood control in the Sacramento-San Joaquin Delta.

Now, the State plans to complete its water plan by June of 1991, and I know that we have in our budgetary submission indicated that the completion date of our study as of 1992. I can tell you that we will not hold that schedule. It looks like the study that we are going to come up with with the State consists of about a three year effort and a $6 million cost, to be cost-shared 50–50. So it would seem to me that if we take that 1991 date, add the three years to it, we are then talking mid-1994 to really come up with a plan. But I think it is essential that we stay with the State on that, because we really can't move ahead of them.

Mr. FAZIO. I want everybody to stay together, and that is my only concern—that we not retard one or the other. The delta studies are very important, not only to Northern California, the region that I represent, but obviously to people in the south, whose water quality is directly at stake.

General SOBKE. Yes, sir.

OAKLAND HARBOR

Mr. FAZIO. Let us talk about the Port of Oakland. I know that is something that the Chairman is aware of and concerned about.

When does the Corps anticipate coming to closure on identifying a site to dispose of the dredged material from the Phase I Inner Harbor project at the Port of Oakland? I know this kicks off a whole subject, and you can run with it, if you want.

General SOBKE. Do you want me to play with that awhile, sir?

Mr. FAZIO. Play with it. We could talk about it for much too long, but go ahead.

General SOBKE. All right. I will just take a few minutes, sir. The Port is pursuing, and has been pursuing since mid-1988, under a Section 215 agreement with the Corps of Engineers, the disposal of some 500,000 cubic yards of material. They were enjoined by the State court from putting that into an ocean disposal site called B1B in May of 1988.

ALTERNATIVE DISPOSAL SITES

Since that time, they have pursued a number of other alternatives to include upland in the delta, to help strengthen the levees in the delta—the flood control problem that we were talking about with the previous study, the Sacramento-San Joaquin Delta—but they have run into permitting difficulties, particularly with Contra Costa County, with regard to the placement of their dredge material at that location.

They are investigating other alternatives to include a land disposal site in Novato called the Redwood Sanitary Landfill, and it seems to be moving in that direction. Frankly, we have some hopes that ultimately some of that material could go to Alcatraz, since most of the material meets all water quality criteria for aquatic disposal.

Mr. FAZIO. That used to be the temporary site for disposal in the Bay Area, did it not? Alcatraz has been on hold for a number of years.

General SOBKE. Well, it is not really on hold. We still use it for maintenance dredging. So we put several million cubic yards of material in there every year.

Mr. FAZIO. I see.

General SOBKE. But there is concern about new work going into that site, and the permitting agencies have taken somewhat of a restraining stand, although they have not implemented any measures. But they have indicated they would like to prohibit putting new work there after December of 1991.

LONG TERM MANAGEMENT STRATEGY

Mr. FAZIO. So any new construction, any new dredging project, has to be—at least in theory—on an upland site or outside the Golden Gate?

General SOBKE. Well, I would say that some people would like to see it that way, but I think that the solution really lies in the effort that we have underway called LTMS, or Long Term Management Strategy. That is an attempt to bring together a coalition of interested parties, Federal, State and local, to pursue a long-term management strategy for the disposal of dredge material in the Bay Area.

Now, we have had a couple of meetings on that. The role staked out by the Corps of Engineers is the integrator of all of this. We have involved the Regional Director of EPA, Mr. Dan McGovern, the Chairman of the Bay Conservation Development Commission, Mr. Bob Tufts, and the Chairman of the Regional Water Quality Control Board, Mr. Jeff Wade, as well as—I understand from Mr.

Van Vleck in the Cabinet at the State Capitol—the possibility of the appointment of a State Coordinator. That group, then, is meeting in a wide open forum with a lot of other people, environmental interests, to attempt to provide the executive management for these studies. And now we have a commitment that EPA will take the lead for ocean disposal sites, and the Corps will take the lead with the two regulatory bodies—BCDC and the Water Quality Board—in support of in-Bay and upland sites.

If we can get our work plan put in place, and we hope to do that at the end of this month, at our next meeting on February 27—with the schedule, in cost, and cost participation from people outside of the Corps of Engineers, and indicate that commitment to achieving a solution, then I hope to be able to go back and convince people that perhaps we can manage that Alcatraz site to accept some of this new work material, and get on, then, with the Phase I, at least, that we are talking about at Oakland.

Mr. FAZIO. I appreciate the leadership that you are attempting to provide in this context. I know it is difficult. I know we have had occasional discordant voices within the Congressional delegation from the region, but I think it is fair to say that the overwhelming view that the Democratic and Republican members from the Bay Area share is that we need to move forward on dredging our major ports and harbors. They are too important to us economically.

COST SHARING

But I wanted to ask a little bit more about the cost sharing issue which I heard you mention. In the conference report accompanying our bill last year, we said, "In order to provide for economically viable and environmentally sound regional solutions to the dredging problems, the conferees direct the Corps of Engineers to fully fund the necessary studies from its Operations and Maintenance account for the development of a long term material disposal plan for the San Francisco Bay region".

Has the Corps implemented this directive? It is my understanding that you have now backed into a cost sharing arrangement which really has no authorization to mandate it.

General SOBKE. I will tell you that I have received instructions that we would receive $2.5 million from Headquarters in 1990, which we are using already to pursue these studies, and that I should pursue cost contributions or contributed funds from other parties for other portions of the study. That is what I am doing.

Mr. FAZIO. Does that not seem to be in conflict with the report language from last year? I am not saying that you made this decision, but the decision that was made seems to be in conflict with that report language.

General SOBKE. Sir, I have my instructions.

Mr. FAZIO. I appreciate your point, and I know General Pat Kelly does, too.

We went over this when we had the Corps leadership here the other day, and I think it really cries out for some leadership, both within the Administration and in the Congress. If we want to treat all of the regions in this country equally, we need to have some sort of guidelines. But I am even more concerned, of course, when

the committee makes a clear statement and it does not seem to have any force of law.

SANTA MONICA BREAKWATER

Let us talk briefly about some other issues in Southern California. The Santa Monica Breakwater—could you give us the current schedule for completing the draft and final feasibility study there?

General SOBKE. Yes, sir. The draft feasibility report will be completed in November of 1992, and the final in January of 1993. It does not look at this time like that schedule could be accelerated.

Mr. FAZIO. It does not?

General SOBKE. No, sir.

Mr. FAZIO. As you know, there is a great deal of interest in pursuing that. We have hopes, of course, for an authorization bill every two years, but you never know, and people hate to miss the boat on these things.

General SOBKE. What happened there, sir, was that we had about an eight-month delay, because we submitted the reconnaissance study, and then we had to do extra economic work on the benefits on that project, and that study took about eight months. That is what the delay was there, sir.

Mr. FAZIO. And there is no capability to accelerate it?

General SOBKE. I have taken a look at it, sir, and it does not look hopeful.

PROJECTS IN VICINITY OF OCEANSIDE

Mr. FAZIO. Okay. I have a couple of questions that I will place in the record on Oceanside Harbor, the Oceanside Experimental Sand Bypass and the San Luis Rey River, all of which are of interest to this committee and have been since our good friend and former colleague Claire Burgner served with us.

We have had some real delays in completing some of these projects. I think they are urgent, and I am sure the Chairman would share our interest in proceeding apace on those projects.

I will put the questions in the record.

[The information follows:]

OCEANSIDE HARBOR

Mr. FAZIO. I understand PED for the Oceanside Harbor breakwater was expected to be completed in Fiscal Year 1991. However, the budget requests only $175,000 in Fiscal Year 1991, with the relatively small amounts of approximately $80,000 needed to complete PED in Fiscal Year 1992. That means that construction could not commence until Fiscal Year 1993 at the earliest. There is an urgent need for this project because lives have been lost in the harbor. Is the Corps capable of completing all PED work in Fiscal year 1991?

General SOBKE. Yes, sir. If $257,000 were provided for this study, we could complete PED in September 1991.

OCEANSIDE EXPERIMENTAL SAND BYPASS

Mr. FAZIO. Last year, Congress appropriated $2.6 million with an additional $775,000 available to operate, monitor and install Phase 2 of the Oceanside Experimental Sand Bypass. I understand the expenditures to date have been far short of our expectations and that the administration has not requested any funding for Fiscal Year 1991, despite successful testing of the project over the past several months. How much does the Corps expect to spend on this project in Fiscal Year 1990 and what is your capability for Fiscal Year 1991?

General SOBKE. Sir, we intend to expend about $1.8 million of the $2.8 million available this year to operate, maintain and monitor Phase I and to continue design of Phase II. Since no funds are included in the President's Budget request for this project in Fiscal Year 1991, we intend to use the remaining Fiscal Year 1990 carryover funds to continue to operate and maintain Phase I in Fiscal Year 1991. We currently have no approved capability for Fiscal Year 1991, pending Headquarters approval to proceed with Phase II construction. A report to justify Phase II construction is scheduled to be submitted by the Los Angeles District to my office in March 1990.

SAN LUIS REY RIVER FLOOD CONTROL PROJECT

Mr. FAZIO. I understand that the Los Angeles District has informed the local sponsor of the San Luis Rey River flood control project that a new schedule is anticipated for completion of the project. That schedule provides for construction of Reach 2 of the project in Fiscal Year 1990 and combined construction of Reaches 3 and 4 in Fiscal Year 1991. Is the $5.5 million proposed by the administration in Fiscal Year 1991 adequate to complete Reaches 3 and 4?

General SOBKE. No, sir. The $5.5 million proposed for Fiscal Year 1991 is not adequate to complete Reaches 3 and 4. We are currently reevaluating the schedule and cost estimate due to a change in design criteria and a change in stream gradient due to illegal sandmining in Reach 4. The current cost estimate exceeds the $10 million Federal cost limit imposed by Section 201 of the 1965 Flood Control Act due to these changes. We are currently looking at either modifying the project design to maintain the project cost within the Section 201 limit or seeking reauthorization. We are coordinating these issues with the city of Oceanside and have not reached a decision on the course of action.

REDONDO BEACH, KING HARBOR

Mr. FAZIO. On Redondo Beach, the King Harbor Breakwater will be ready for construction in 1991. We have seen a number of examples of where this has been a serious problem for the people of that region. We have seen some high-water destruction.

I know that a number of the committee members have been on site. Could you do something to help us here? Is it simply a no new starts policy that is going to require this project, which has got a good cost-benefit ratio and is all ready to go, to just sit, hoping to avoid another disaster?

General SOBKE. Sir, I believe that we are caught on that on the no new starts policy.

Mr. FAZIO. But if we wanted to somehow conflict with that policy in this committee, could the Corps begin construction immediately? Do you have the capability?

General SOBKE. Subject to the usual qualifications I have the capability, yes, sir.

Mr. FAZIO. You are ready to roll on that?

General SOBKE. Ready to roll on that one, sir.

NAPA RIVER

Mr. FAZIO. On the Napa River, could you give us the current cost estimate for completing the project? I understand there are some really tight cost-benefit ratios in that regard.

General SOBKE. I will give you two estimates on that, sir. The one that we submitted in the budget is $121 million. But we have done additional work with the city of Napa on that project, and while we do not have a firm estimate yet, we believe that the cost of that project can be brought down to the $60 million to $70 million level, which would give us a much better capability of finding an agreeable cost-sharing partner on that project.

They have got a severe problem which I think I indicated in my——

Mr. FAZIO. Are we going to see a downscoping of the project, do you think?

General SOBKE. Yes, sir.

Mr. FAZIO. Do the people of Napa all understand their responsibility, and agree?

General SOBKE. As far as I know, they are on board and participating with Jack Le Cuyer in bringing that project down to a more manageable level for them.

LOS ANGELES-LONG BEACH HARBORS

Mr. FAZIO. Could you give me a statement as to how much you need to start PED for Los Angeles-Long Beach Harbors in Fiscal Year 1991? This, of course, is a very important project for our Public Works Chairman, Glenn Anderson. We always like to accommodate our authorizing committee chairmen, particularly. I just wanted to see where you stood on that one.

General SOBKE. Yes, sir. We are going forward to our Headquarters with our feasibility report in February of 1991. That should tell us what that project will consist of in terms of Corps participation. That report, because of the policy issues involved, will be reviewed at the Washington level, and I do not have an approved capability for that project at this time.

Mr. FAZIO. As we have already noted with regard to the Port of Oakland, there is a tremendous amount of Federal revenue generated by these major ports. I just wanted to make sure that we kept the project moving forward, and I am wondering if there is anything that we could do this year to guarantee that?

General SOBKE. From an engineering point of view, we could start PED with $1 million.

Mr. FAZIO. With $1 million?

General SOBKE. Yes, sir.

Mr. FAZIO. Thank you very much.

I would like to place in the record a question regarding Rancho Palos Verdes, and then just briefly go back to the Port of Oakland.

[The information follows:]

RANCHO PALOS VERDES, CA

Mr. FAZIO. How much do you need to start and complete the feasibility study for Rancho Palos Verdes landslide in Fiscal Year 1991?

General SOBKE. Sir, the reconnaissance study has not yet been completed and we have not yet developed a feasibility study cost estimate. Based on the general rule that the feasibility study cost is three times the reconnaissance study cost, the feasibility cost would be $1,020,000. However, there are preliminary indications that this feasibility study may cost as much as $2 million. The study will require about three years to complete.

DISPOSAL PLAN COST SHARING

Mr. FAZIO. General, what level of funding did you recommend for the development of a long term dredged-material disposal plan for 1990, 1991 and any additional years needed to complete the plan? And did you recommend 100 percent Federal financing for such studies?

General SOBKE. During the 1990–1991 time frame, my original recommendation forwarded to the Headquarters in May of last year was about $5 million for each of those years, and it was 100 percent Federal. But I did not have the understanding of this situation I was later given by folks down in the Pulaski Building.

Mr. FAZIO. What is the Corps proposing to allocate to this study in Fiscal Year 1991 at this point?

General SOBKE. That's $2.5 million in 1990. Oh, 1991—excuse me. In 1991, it is zero dollars, sir.

Mr. FAZIO. Was that on the assumption that the Corps would not get any cost sharing participants?

General SOBKE. That was on the assumption that the Corps would get cost sharing participants.

Mr. FAZIO. For the total amount?

General SOBKE. Yes, sir.

Mr. FAZIO. I see. I figured that maybe Washington gave you no money because they figured that no one would respond. But in fact, they expect the response to be total, is that the point? There is no sharing in that regard. I guess that we are still, in somebody's mind, making up for lost time, money already spent?

General SOBKE. We still have the $2.5 million in Fiscal Year 1990.

Mr. FAZIO. Has that been spent?

General SOBKE. It is being spent.

Mr. FAZIO. I see. It will be gone by the end of the fiscal year?

General SOBKE. I expect that the bulk of it will be gone, and we are giving a portion of that to EPA, for them to commence their ocean studies.

But I have to say in fairness, now—I have not talked about who has contributed what. EPA has come forward with $600,000 in Fiscal Year 1990. So the notion of obtaining commitment through cost sharing is not entirely without some recommendation for itself.

Mr. FAZIO. Yes.

General SOBKE. So, in my view, the cost sharing notion has stimulated great interest on the part of people in the Bay Area.

Mr. FAZIO. Well, this is something that we need to work together on, and we try to negotiate through this and get something moving. This is a very important issue for the economy of the region. We appreciate what you have done, and look forward to putting you in a position to do more.

General SOBKE. All right, sir.

Mr. FAZIO. I have some additional questions on Sam Timoteo Creek that I will put in the record.

[The information follows:]

SAN TIMOTEO CREEK

Mr. FAZIO. This Committee is pleased that the Corps' Final Report dated February 1990 recommends construction of the San Timoteo Creek flood control feature of the Santa Ana. Given the report's positive recommendation and the strong Congressional support for this feature, how quickly will the Corps begin the design work on the San Timoteo?

General SOBKE. Sir, we do not as yet have a final report for the San Timoteo Creek feature. The Los Angeles District has prepared a draft of the feasibility level final report which is now being reviewed in my office. I understand that there are

SOUTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. MULTIPLE PURPOSE POWER PROJECTS (Cont'd)

Project	OBLIGATIONS Actual FY 1989 $	Estimated FY 1990 $	Estimated FY 1991 $	Explanation of Major Changes
CALIFORNIA				
New Melones Lake (Downstream Channel)	590,000	618,000	751,000	First year full maintenace of Knights Ferry recreation area and increased costs for service contracts in FY 91.
TOTAL - MULTIPLE PURPOSE	590,000	618,000	751,000	

4. PROTECTION OF NAVIGATION

The program request of $2,770,000 provides for removal of drift and debris; and project condition surveys on some projects for which maintenance is not scheduled in the budget year.

Drift Removal (San Francisco Harbor and Bay)	1,305,000	1,777,000	1,808,000	Replace backhoe in FY 90; repair of debris boats in FY 90 and FY 91.
Project Condition Surveys	409,000	953,000	962,000	Additional surveys in FY 90 and FY 91.
TOTAL - PROTECTION OF NAVIGATION	1,714,000	2,730,000	2,770,000	
GRAND TOTAL - SOUTH PACIFIC DIVISIONS	53,689,000	60,700,000	63,220,000	

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some technical concerns with the adequacy of the plan presented in the draft report that still must be resolved. We will identify a technically adequate engineering solution for the flood problem along San Timoteo Creek in our report, which will be submitted upon resolution of the technical issues. Engineering and Design is not currently scheduled pending review of the report and a decision that the solution warrants the support of the Administration.

Mr. FAZIO. How can this Committee help to expedite the design work on the San Timoteo? What is the time frame to begin construction of the San Timoteo? Given the high priority placed on this feature by Members of this Committee, we certainly expect that every effort will be made to expedite construction of this important flood control channel.

General SOBKE. Sir, I cannot initiate design of San Timoteo Creek prior to approval of the report and specific guidance from my headquarters to do so. No funds have yet been provided for design. It will take about three years to complete design and two years to complete construction of the San Timoteo feature.

CORPS RESPONSE TO EARTHQUAKE

Mr. FAZIO. Thank you, all of you, for your presentation.

Thank you, Mr. Chairman, for all the time.

Mr. BEVILL. The Chair recognizes Mrs. Boggs.

Mrs. BOGGS. Thank you, Mr. Chairman.

I am sorry that I was delayed in arriving, and did not hear your presentation. I have read some of it, with great interest, but I did not want the occasion to go by without thanking you and commending you for the magnificent work that the Corps and its personnel and particularly its volunteers performed in the earthquake disaster and all of the ensuing difficulties. It was just a remarkable example of true expert knowledge and of devoted public service. I really do wish to extend my congratulations to you, and my gratitude.

General SOBKE. That is very kind of you, ma'am.

Mr. FAZIO. Mrs. Boggs has made major investments in Stanford University. [Laughter.]

General SOBKE. They had a lot of damage there.

Mrs. BOGGS. I had two grandsons graduate from there.

General SOBKE. Congratulations to you, ma'am, on that. That is great.

FY 1991 BUDGET

Mr. BEVILL. General, your Construction, General budget request is more than 50 percent greater than your 1990 program, and more than twice your 1989 program.

Are you confident that you can efficiently execute such a large program, and will your construction program continue to rise?

General SOBKE. Yes, sir, I think that we do have that confidence, and of course it is going to continue to rise. That Santa Ana project is starting to kick in now, and then we will have Mr. Fazio's project starting to kick in. So I can tell you that—there are others on the horizon, too.

When you talk about Las Vegas Wash, Flamingo and Tropicana—that is $100 million there, in construction. You have got another $100 million or so up at Reno-Sparks, there, the Truckee Meadows project.

I do not know what we have got on Blue Diamond Wash and Duck Creek, which is also in Las Vegas. So I will tell you that there is great activity, and I think it reflects the sentiment that I

was trying to express in my opening statement—that there is a continued need for public works infrastructure upgrade in the west, in terms of flood control and navigation.

SANTA ANA RIVER MAINSTEM

Mr. BEVILL. The biggest, I guess, is the Santa Ana, and the most critical——

General SOBKE. Sir, I am not going to say it is the most critical. [Laughter.]

Mr. BEVILL. If Mr. Fazio was not in the room, would you say that? [Laughter.]

General SOBKE. I would not even do that because he reads. [Laughter.]

Mr. BEVILL. What is the total cost of the Santa Ana project?

General SOBKE. It is $1.359 billion.

Mr. BEVILL. Yes. And actually, that is very critical to the Los Angeles area?

General SOBKE. Yes, sir.

Mr. BEVILL. Yes. I have some other questions here, but I am going to submit them for the record, and others here will have questions for you to answer on the record.

[The information follows:]

COAST OF CALIFORNIA STORM AND TIDAL WAVES

Mr. BEVILL. Will the Coast of California, Storm and Tidal Waves study be completed this September as scheduled?

General SOBKE. Yes, sir, it will.

Mr. BEVILL. Have you developed a shoreline preservation strategy in cooperation with the San Diego Association of Governments as directed in House Report 101-96?

General SOBKE. Yes, sir, we have. A number of coordination meetings were held with the San Diego Association of Governments staff on the scope and tasks needed for the development of a sound and practical shoreline preservation strategy for the San Diego Region. The plan will be included with the report scheduled for completion in September 1990.

GLENN-COLUSA IRRIGATION PROJECT

Mr. BEVILL. What is the status of preconstruction engineering and design of the Sacramento River Flood Control, Glenn-Colusa Irrigational District, project?

General SOBKE. Sir, PED was initiated this year. A plan of action has been drafted, and the General Design Conference will be held next month. PED is scheduled to be completed in June 1991.

Mr. BEVILL. Why have no funds been requested to continue this project in Fiscal Year 1991?

General SOBKE. Sir, no funds have been requested for Fiscal Year 1991 because the $500,000 provided in Fiscal Year 1990 are sufficient to complete PED.

NORTHERN CALIFORNIA STREAMS, AMERICAN RIVER WATERSHED STUDY, CA

Mr. BEVILL. The Fiscal Year 1990 Energy and Water Development Appropriations Act provided an additional $125,000 to expedite completion of the Northern California Streams, American River Watershed, study. What is the status of the study?

General SOBKE. Sir, the feasibility study is underway and is scheduled for completion in January 1991.

RANCHO PALOS VERDES, CA

Mr. BEVILL. What is the status of the reconnaissance study of coastal erosion control for the Portuguese Bend landslide, Los Angeles, California, that was directed by the 1990 Appropr tions Act?

General SOBKE. The Rancho Palos Verdes reconnaissance which includes coastal erosion control for the Portuguese landslide, is currently underway. The reconnaissance phase is scheduled for completion in June 1990.

SANTA MONICA BREAKWATER

Mr. BEVILL. Why has the estimated cost of the Santa Monica Breakwater, California, feasibility study increased $270,000 from the estimate provided last year?

General SOBKE. Sir, study findings during the reconnaissance investigation indicate that we will need to perform additional technical model work and detailed economic analyses to complete our reconnaissance report. Based on this additional effort it was necessary to increase our study cost estimate for more detailed follow-on work in the feasibility study.

GILA RIVER & TRIBS, SALT-GILA, AZ AND SAND DIEGO COUNTY STREAMS

Mr. BEVILL. Why have no funds been requested to continue the Gila River and Tributaries, Salt-Gila River, Arizona, and the Imperial and San Diego County Streams Flowing into the Salton Sea, California, studies?

General SOBKE. Sir, reconnaissance investigations for both studies have recently been completed and study findings indicate that projects for flood control cannot be economically justified in either study. As a result, these studies will be terminated and follow-on funding will not be required.

NORTHERN CALIFORNIA STREAMS, SACRAMENTO METROPOLITAN AREA, CA

Mr. BEVILL. Can you give us any information at this time about the recommendations of the Northern California Streams, Sacramento Metropolitan Area, study which is scheduled to be completed in September 1990?

General SOBKE. Yes, sir. The Sacramento Metropolitan Area study is being conducted parallel to the American River Watershed study and both will be completed in January 1991. The two studies are being combined as a single project for PED in Fiscal Year 1991. The portion of the overall plan which will result from this study includes modifying levees in the West Sacramento area to provide a 200-year level of protection.

PINE FLAT DAM, KINGS RIVER, CA

Mr. BEVILL. Why have no funds been requested to continue the Pine Flat Dam, Kings River, California, study?

General SOBKE. Sir, it is our intent to terminate this study upon completion of the reconnaissance phase. We have determined that the proposed alternatives are not economically feasible.

SAN JOAQUIN RIVER BASIN, TULE RIVER, CA

Mr. BEVILL. Why has the completion date for the San Joaquin River Basin, Tule River, California, study slipped from July 1990, which was reported last year, to January 1992?

General SOBKE. Sir, during the reconnaissance study we found that existing floodplain information provided insufficient detail to prepare feasibility level studies. More refined floodplain data will have to be developed before we can complete the feasibility report. It will require about 18 months to perform floodplain management studies, re-evaluate economics, and coordinate with the local sponsor.

SANTA ANA RIVER & ORANGE COUNTY AND WALNUT CREEK BASIN, CA

Mr. BEVILL. Why are additional funds required in Fiscal Year 1991 to complete the Santa Ana River and Orange County, California, study and the Walnut Creek Basin, California, study?

General SOBKE. The $270,000 requested for the Santa Ana River and Orange County study includes restoration of $260,000 reprogrammed from the study in Fiscal Year 1989 and $10,000 for Federal salary increases. The reprogramming was the result of manpower constraints and higher priority work. These funds are needed in Fiscal Year 1991 to complete the Final Report. Initiation of the cost-shared portion of the Walnut Creek Basin study was delayed by extended negotiations. As a result, the Feasibility Cost Sharing Agreement was not executed until June 30, 1989. The $85,000 is not an additional cost; it replaces funds not allocated in Fiscal Year 1989 due to the delayed cost sharing agreement.

BEAR RIVER, UT, ID, WY STUDY AND ALAMO LAKE, AZ

Mr. BEVILL. Why have no funds been requested to continue the Bear River, Utah, Idaho, and Wyoming, study and the Alamo Lake, Arizona, study?

General SOBKE. Sir, it has been determined that there is no Corps interest in proceeding with the Bear River project because less than 10 percent of the project's benefits would be for flood damage reduction. We completed the reconnaissance study of the Alamo Lake project with a determination that no further Federal action was warranted.

QUESTIONS SUBMITTED BY CONGRESSMAN CONTE

SEQUESTRATION

QUESTION. Please describe and quantify the impacts of sequestration on your Fiscal Year 1990 operating program.

ANSWER. There were no impacts to the South Pacific Division operating program as a result of sequestration in Fiscal Year 1990.

PREVENTION OF DRUG USE

QUESTION. Does the Division conduct any activities designed to reduce, eliminate or prevent the use of drugs? Please describe any such activities and quantify their costs and impacts.

ANSWER. The Corps of Engineers South Pacific Division workforce is predominantly professional in nature and has not experienced a problem associated with widespread use of drugs. The South Pacific Division has an Employee Assistance Program which is available for use by all employees, and can assist with the reduction, elimination or prevention of use of drugs. In addition, articles are published in various publications including Directorate of Human Resources Employee and Supervisory Newsletters, District/ Division Newsletters, and Information Bulletins. Training is available for supervisors to increase awareness of the warning signs attributed to drug use and how to approach a situation. It would be difficult to quantify the direct costs of the activities because the Employee Assistance Program and the publications are utilized for other reasons as well.

EARTHQUAKE

QUESTION. What outside resources did the Corps call upon to assist in the performance of residential habitability studies subsequent to the Loma Prieta earthquake? Please describe the nature and extent of service rendered by non-Corps sources in this regard.

ANSWER. Only Corps of Engineers personnel were used to conduct habitability studies for FEMA. Because of the magnitude of the assignment, requiring a 300-person workforce, it was necessary to contract for logistical support. This workforce was assembled from Corps Divisions and Districts Nationwide, and literally overnight. We contracted for ground transportation from four rental car agencies and for lodging at nine separate hotels and motels. In addition we received extremely valuable air transportation support from the Sixth Army Aviation Flight Detachment at Hamilton Air Base. We also received air transportatin support from the East Bay Regional Parks District, the Army National Guard at Mather Air Force Base, and the U. S. Air Force at Nellis Air Force Base.

QUESTION. Were extraordinary measures necessary in order for the Corps to execute contracts for emergency levee repairs so quickly after the Loma Prieta earthquake? For example, were waivers from ordinary bid procedures required? If so, please describe the nature and extent of such extraordinary measures.

ANSWER. The contracting methods used were those set forth in the Federal Acquisition Regulations in Section 1.600 and Section 17 and in the Engineer Regulations. These regulations are the same regulations that are used for any emergency, such as flood fighting, and are authorized after a Declaration of National Emergency. Approvals for actions, such as letter contracts, were quickly received.

QUESTIONS SUBMITTED BY CONGRESSMAN KOLBE

HASSAYAMPA RIVER, ARIZONA

QUESTION. The Flood Control District of Maricopa County, Arizona considers the need for a solution to flooding problems in the Wickenburg area to be of great importance. Rapid population and development growth in the area has increased the potential for more serious damage and potential loss of life than has historically occurred in the area. Does the Corps have the capability to undertake a $300,000 reconnaissance study for Wickenburg in Fiscal Year 1991 as requested by the Flood Control District of Maricopa County?

ANSWER. Subject to the usual qualifications, we have a capability of $300,000 to initiate and complete the reconnaissance phase study for the Hassayampa River, Wickenburg, Arizona study in Fiscal Year 1991.

QUESTION. What is the status of approval for this study?

ANSWER. The Hassayampa River, Wickenburg, Arizona study is authorized under broad basin authority for study of the Gila River and Tributaries included in the 1938 Flood Control Act.

CENTRAL MARICOPA COUNTY

QUESTION. In addition, they are concerned about the potential for flood damages in Central Maricopa County. Does the Corps of Engineers have the capability to undertake a $500,000 reconnaissance study for Central Maricopa County in Fiscal Year 1991 as requested by the Flood Control District of Maricopa County?

ANSWER. Subject to the usual qualifications, we have a capability of $500,000 to initiate and complete the Central Maricopa County Drainage Area, Arizona reconnaissance phase study in Fiscal Year 1991.

QUESTION. What is the status of approval for this study?

ANSWER. The Central Maricopa County Drainage Area study is authorized under broad basin authority for study of the Gila River and Tributaries included in the 1938 Flood Control Act.

QUESTIONS SUBMITTED BY CONGRESSMAN LAGOMARSINO

CARNEROS CREEK, CALIFORNIA

QUESTION. What additional authority is required to proceed with the much needed Carneros Creek project in Goleta, California?

ANSWER. We can proceed with Preconstruction Engineering and Design under current authority. Before we initiate construction, however, the Carneros Creek project will need Congressional authorization.

QUESTION. What is your capability to initiate Preconstruction Engineering and Design studies on the project in Fiscal Year 1991?

ANSWER. Subject to the usual qualifications, we could use $300,000 to initiate these studies in Fiscal Year 1991.

QUESTION. When could these studies be completed and when could construction be initiated?

ANSWER. Preconstruction Engineering and Design could be completed in about two years. Construction could be initiated following design completion, subject to project authorization and the provision of funds for construction.

CONCLUSION

Mr. BEVILL. Thank you for your fine presentation.
General SOBKE. Thank you, sir.

TUESDAY, FEBRUARY 20, 1990.

NORTH PACIFIC DIVISION

WITNESSES

BRIG. GEN. PAT M. STEVENS IV, DIVISION ENGINEER
ROBERT P. FLANAGAN, CHIEF, ENGINEERING DIVISION
JOHN E. VELEHRADSKY, CHIEF, PLANNING DIVISION
GEORGE J. ZEILER, ACTING CHIEF, CONSTRUCTION DIVISION
ALLEN W. SUMMERS, CHIEF, PROGRAMS MANAGEMENT OFFICE
J. MICHAEL SMITH, ASSISTANT CHIEF, PROGRAMS MANAGEMENT OFFICE

Mr. BEVILL. Next we have the North Pacific Division. Good morning, General.

General STEVENS. Mr. Chairman, good morning, sir.

Mr. BEVILL. We are pleased to have you with us, General, and you may proceed as you wish. I am sure you will want to introduce your staff that is with you.

General STEVENS. Thank you very much, Mr. Chairman.

Mr. Chairman and distinguished members of the committee, I have the honor to appear before you for my second time to report on the Civil Works activities of the Corps of Engineers in the North Pacific Division, and to present our program requirements for fiscal year 1991.

Staff members with me today are Mr. Bob Flanagan, Chief of Engineering; Mr. John Velehradsky, Chief of Planning; Mr. George Zeiler, Acting Chief of Construction-Operations; Mr. Al Summers, Chief of Programs Management; and his assistant, Mr. Mike Smith.

Sir, I would like to submit for the record my prepared status report, and to present a brief oral summary.

Mr. BEVILL. Without objection, it will be made part of the record.

General STEVENS. Thank you, sir.

AREA OF RESPONSIBILITY

The North Pacific Division includes Alaska and the Pacific Northwest. These two areas comprise about one-fourth of the land area of the United States.

ACCOMPLISHMENTS AND OPPORTUNITIES

Corps of Engineers water resources projects continue to serve this region and the nation well. Flood damages prevented by Corps projects in the Pacific Northwest and Alaska now total more than $10 billion. That is more than four times their original cost.

Many tributary streams, however, are still unprotected, and flooding can result in major damage, such as occurred in several areas of Oregon and Washington last month.

The 122 navigation projects in our region provide more than 1,000 miles of waterways for transportation of our nation's commerce. International trade between our region and the Pacific Rim nations continues to increase and place demands on our navigation systems. In the Columbia Basin, the Corp's 21 hydroelectric projects account for about 30 percent of the total energy generated by all sources. The value of the power, to date, from these projects is more than five times their original cost.

During low water conditions, Corps storage projects provide additional significant benefits, such as critical flow augmentation for fish and water quality.

The impact of our dams on migrating salmon and steelhead is being mitigated with a broad spectrum of measures. More than $500 million has been invested to date on fish bypass systems, fish transportation, and hatcheries.

These actions, in combination with other regional efforts, such as spill, are producing a significant improvement in the Columbia River fish runs.

In recent years, the fall Chinook and steelhead have been returning in record numbers, while the spring and summer Chinook are beginning to show improvement.

PROGRAM SUMMARY

Mr. Chairman, our program request for fiscal year 1991 is $292,512,000. It includes 13 GI survey studies and five preconstruction engineering and design studies.

Construction will proceed on eight projects. We will continue to operate and maintain 36 multiple-purpose and 38 navigation projects. I will now outline our program.

STUDIES

First, our major GI studies. Our program request for fiscal year 1991 includes funds to continue the Columbia River and tributaries and upper Snake River and tributaries studies. A joint operational review of the entire Columbia River system by the Corps of Engineers, the Bureau of Reclamation, and the Bonneville Power Administration is now underway.

This review is needed in preparation for renewal of key power generation agreements among various parties which includes Canada.

SNAKE RIVER, WYOMING

The Snake River in Wyoming study, investigating potential levee modifications at Jackson Hole, is being completed this year.

COOS BAY, OREGON

At Coos Bay, Oregon, the Federal deep-draft channel is inadequate to accommodate vessels calling on the port. Completion of a feasibility study is scheduled in fiscal year 1991.

JOHNSON CREEK, OREGON

Johnson Creek continues to pose a flood threat to an urban area of Portland, Oregon. Fiscal year 1990 funds are being used to initiate and complete a reconnaissance-level study. In fiscal year 1991, we would initiate the cost-shared feasibility study.

OLYMPIA HARBOR, WASHINGTON

At Olympia Harbor, Washington, the West Channel restricts growth in water-borne commerce. We would complete the cost-shared feasibility study in fiscal year 1991.

HOWARD HANSON DAM, WASHINGTON

At Howard Hanson Dam in Washington, in cooperation with the City of Tacoma, we would complete the feasibility report in fiscal year 1991 for water supply storage.

TRI-CITIES LEVEES, WASHINGTON

The tri-cities of Kennewick, Pasco and Richland, Washington, desire to lower the Federal levees on the Columbia River to provide access to the river. Such lowering must be compatible with today's flood control needs. Fiscal year 1991 funds would initiate the feasibility phase of this cost-shared study.

WILLAMETTE RIVER BASIN, OREGON

For Oregon's Willamette River Basin, we would complete the reconnaissance study in fiscal year 1991. This will determine the effect of potential changes in project operations.

LOWER COLUMBIA RIVER CHANNEL STUDY

Columbia River ports want a deeper channel in the Lower Columbia to accommodate larger vessels. Fiscal year 1991 funds would initiate a cost-shared feasibility phase study.

SEWARD, ALASKA

Seward, Alaska is subject to flooding from several rivers and streams. This year, we will complete a reconnaissance study. Our fiscal year 1991 program request would initiate a feasibility study for improving the Lowell Creek Tunnel.

UNALASKA, ALASKA

Unalaska, Alaska suffers from coastal storm flooding and erosion. Fiscal year 1991 funds would complete a cost-shared feasibility study.

CENTRALIA, WASHINGTON

For Centralia, Washington, general design of the project to reduce flood damages such as occurred last month would be completed in fiscal year 1991.

CHEHALIS, RIVER, WASHINGTON

The general design for a levee system at the mouth of the Chehalis River at South Aberdeen and Cosmopolis, Washington will be completed in fiscal year 1990. We would use fiscal year 1991 funds to initiate plans and specifications.

COLUMBIA RIVER, INDIAN TREATY FISHING

A two-year evaluation study and design will be initiated in fiscal year 1991 for providing Indian treaty fishing access facilities at sites on the Columbia River.

KODIAK HARBOR, ALASKA

At Kodiak Harbor, Alaska, we plan to complete design this year on the authorized project to increase protected moorage capacity. Plans and specifications would be completed with fiscal year 1991 funds.

LITTLE WOOD RIVER, IDAHO

For the Little Wood River project in Idaho, we are evaluating the authorized flood control project for the cities of Gooding and Shoshone, with fiscal year 1991 funds.

CONSTRUCTION

Several major construction projects are underway in the North Pacific division.

BONNEVILLE NAVIGATION LOCK

Work on the new navigation lock on the Bonneville Dam on the Columbia River is progressing well.

Bids were opened earlier this month for the contract to construct the lock itself. Fiscal year 1991 funds would be used to continue construction. The entire project is scheduled for completion in 1993.

BONNEVILLE SECOND POWERHOUSE

At the Bonneville Second Powerhouse, wildlife mitigation activities and evaluation of juvenile fish bypass measures continue.

CHIEF JOSEPH DAM, WASHINGTON

At Chief Joseph Dam in Washington, ongoing work to correct deficiencies related to the initial upgrading of the project's generating units continues on schedule.

GRAYS HARBOR, WASHINGTON

Dredging of the navigation channel at Grays Harbor, Washington, is scheduled to start in May 1990. In fiscal year 1991, work will begin to replace the railroad bridge. The project will be completed in September 1992.

LOWER SNAKE RIVER COMPENSATION PLAN

Work on the Lower Snake River Fish and Wildlife Compensation Plan continues. Eight out of nine planned hatcheries are operating. Construction of the final hatchery is underway, and land acquisition for wildlife continues.

ST. PAUL ISLAND HARBOR, ALASKA

On St. Paul Island, Alaska, construction of the Federal portion of the new harbor was completed by the City of St. Paul last December.

MUD MOUNTAIN DAM, WASHINGTON

Construction of a cutoff wall through the center of Mud Mountain Dam in Washington, to correct a seepage problem, is scheduled for completion in June. Work is underway to raise the dam and spillway walls and construct a new intake tower.

ELK CREEK DAM, OREGON

In Oregon, construction of Elk Creek Dam was stopped in 1987 by the Ninth Circuit Court of Appeals. That decision was overturned by the Supreme Court last spring, and the case remanded to the District Court for decision on the scope of further NEPA compliance. We await direction from that court.

JUVENILE FISH MITIGATION

In order to provide further protection for juvenile fish migrating past Corps dams, our program proposed continued construction of juvenile fish mitigation measures. We would proceed with fish bypass facilities at four main stem dams on the Columbia and Snake Rivers. Additionally, a detailed mitigation analysis would establish the ultimate scope of juvenile fish mitigation.

MOUNT SAINT HELENS, WASHINGTON

A sediment retention structure at Mount St. Helens, under construction since December, 1986, is essentially complete, and functioning well.

OPERATION AND MAINTENANCE

Operation and maintenance continues to be a major activity in the division.

JOHN DAY REHABILITATION

Major rehabilitation of the turbines and generators at John Day Dam would continue with fiscal year 1991 funds.

HOPPER DREDGES

The hopper dredges, Essayons and Yaquina, two of the Corps' minimum fleet, successfully maintained West Coast rivers and harbors this past year.

ALASKA OIL RECOVERY

In April 1989, we dispatched the two dredges to Alaska, to assist in the oil recovery effort. They proved effective in this task, collecting more than 6,900 barrels of oil.

WYNOOCHEE DAM, WASHINGTON

The transfer of operation maintenance of Wynoochee Dam in Washington to the City of Aberdeen is anticipated in mid-1990.

CONTINUING AUTHORITIES PROGRAM

Under our continuing authorities program, three projects—Sauk River, in Elwha, Washington, and Tongue Point, Oregon, shown here—have been completed. Malheur Lake, Oregon and St. George, Alaska, are under construction.

Feasibility studies and preparation of plans and specifications continue for numerous locations in Alaska, Idaho, Oregon and Washington.

SUMMARY

In summary, Mr. Chairman, our 1991 program request of a little over $292 million would provide for continued operation of our existing water resource system, as well as for continued orderly development.

Mr. Chairman, this concludes my remarks, sir. I would be happy to answer any questions you may have.

[The prepared statement of General Stevens follows:]

FISCAL YEAR 1991 STATUS REPORT TO CONGRESS
CIVIL WORKS ACTIVITIES
IN THE NORTH PACIFIC DIVISION
BRIG. GENERAL PAT M. STEVENS IV, DIVISION ENGINEER

Mr. Chairman, distinguished members of the committee, I have the honor to appear before this committee to report on the Civil Works activities of the U.S. Army Corps of Engineers in the North Pacific Division and to present our program requirements for Fiscal Year 1991.

AREA OF RESPONSIBILITY

The North Pacific Division comprises two widely separated geographical areas: the northwestern region of the United States, encompassing all or parts of seven states, more commonly referred to as the Pacific Northwest; and the State of Alaska. These two areas total 883,000 square miles, or about one-fourth the land area of the United States. The Division headquarters is located at Portland, Oregon, and the four district offices are at Portland, Oregon; Seattle, Washington; Walla Walla, Washington; and Anchorage, Alaska.

The Columbia River is a major physical feature of the Pacific Northwest. Flowing a distance of 1,200 miles from British Columbia, Canada, to the Pacific Ocean, it drops in elevation about 2,600 feet on its journey.

The Columbia Basin is the third largest drainage system in the continental United States. The Corps of Engineers' role in the Columbia Basin has been to develop its water resources for flood control, navigation, hydropower and other related purposes. Protection of the environment and the rich natural resources of the region continues to be of primary concern.

ACCOMPLISHMENTS AND OPPORTUNITIES

Corps of Engineers water resources projects in the Pacific Northwest and Alaska have benefited the region and the nation through the years. We see many opportunities in the future to provide even greater benefits to the people and economy of the region through wise water resources development and protection.

Flood Control Accomplishments

Flooding at major damage centers in the Columbia River Basin is essentially controlled as a result of levees and a major system of storage reservoirs designed and operated by the Corps. On the lower Columbia, in the vicinity of Portland, Oregon, and in the Willamette Valley, more than 400 miles of levees and 25 upstream flood control reservoirs have reduced what otherwise would have been disastrous floods to minor residual damage levels. For example, flood damages prevented to date in the Portland area and along the Willamette River total approximately $7.7 billion.

Many tributary streams, however, are still unprotected, and flooding can result in major damage, such as occurred in several areas of Oregon and Washington last month.

The major flood control reservoirs in the Columbia Basin are operated by the Corps' Reservoir Control Center in Portland, Oregon. Three of these projects are in Canada, controlled through the Columbia River Treaty, six are Bureau of Reclamation projects, two are private power projects and the remaining 16 are Corps projects.

Flood damages prevented by Corps of Engineers projects in the Pacific Northwest and Alaska now total in excess of $10.4 billion. The total

investment in all the projects with flood control as a purpose is about $2.5 billion. Therefore, over four times the investment in flood control projects has been returned in terms of flood damages prevented.

Navigation Accomplishments

There are 122 authorized navigation projects, including 37 small boat harbors in Alaska, in the North Pacific Division. These provide more than 1,000 miles of waterways to transport commerce. International trade between our region and Pacific Rim nations continues to increase and place demands on our navigation system.

The dredges ESSAYONS and YAQUINA, two of the Corps' four hopper dredges in its Minimum Fleet, removed more than five million cubic yards of material from west coast rivers and harbors in FY 89. Additionally, over 12 million cubic yards of material were removed by private contractor and port-owned dredges.

Hydropower Accomplishments

Hydroelectric power is vital to the Pacific Northwest's economic health. The Columbia River Basin is the source of more than 60 percent of the region's electrical energy. Last fiscal year, the Columbia River Hydropower System generated over 110 billion kilowatt-hours of pollution-free energy.

The Corps of Engineers' 21 hydroelectric plants in the Pacific Northwest generated 54 billion kilowatt-hours, or about 30 percent of the total electrical energy produced by all sources in the region. This would be enough to meet the needs of more than seven million homes. The 54 billion kilowatt-hours is equivalent to more than 90 million barrels of oil.

The output to date from these 21 hydroelectric plants has been of tremendous value to the economy of the region. The market value of the power generated is more than five times the total original cost of the projects

At the Bonneville project, for example, power generated from both the original powerhouse and second powerhouse, added in 1982, totals more than 203 billion kilowatt-hours during the past 53 years. While this represents enough energy to light and heat almost 28 million homes for a year, this power has also fueled industrial growth, with a major share of the U.S. aluminum smelting drawn to the region by lower electrical rates.

Low Water Accomplishments

During low water years, such as the last three and perhaps again this year, Corps projects play a very important role in maintaining hydroelectric energy production, preserving instream flows for water quality and fisheries, and providing slack-water navigation. Regulation and management of our reservoir systems become increasingly challenging, as critical operating tradeoffs need to be considered. With careful planning and coordination between all interests, the storage reservoir system in the Columbia River Basin refilled to 88 percent of full in 1989. Reservoir releases in early August 1989 were required to meet firm energy demands for the Northwest area. Reservoir releases prior to Labor day weekend inevitably impact the recreation interests and related businesses. Boat ramps in some reservoirs were extended last year and additional remedial work will continue.

The 1989 "Water Budget" operation was successful in assisting juvenile fish migrate to the sea. This special flow augmentation is critical during low water periods. Our slack-water navigation system of eight dams and navigation locks on the lower Columbia and Snake Rivers also provided river navigation throughout the low water period with no impacts.

As we begin 1990, our Columbia system continues to meet most operating objectives. If we are fortunate enough to receive near-normal water supply, we should refill the system to full for the next operating year, 1990-91. Less water supply would result in continuing reservoir recreation impacts, and another drought year could result in impacts to our other operating objectives. At this date, our early water supply forecasts look reasonably optimistic.

In the Willamette River Basin of Oregon, 11 Corps storage projects augmented downstream releases in the late summer and fall of 1989, fully meeting regulation objectives that had been established. There were no reservoir recreation impacts in this basin as all the reservoirs were filled to their maximum planned levels in the spring.

Our two storage projects in the Rogue River Basin in Southern Oregon also were able to augment extremely low natural streamflows, making the benefits for fishery and irrigation needs quite evident.

Anadromous Fisheries Accomplishments

The Corps has provided fish hatcheries, adult and juvenile fish passage facilities, water control structures, special flows and spills, and fish transportation systems to offset the impacts of our dams on the salmon and steelhead runs in the Columbia River Basin. These measures,along withother regional efforts, are being reflected in

increased numbers of adult fish returning to the Columbia River system.

Fall chinook and steelhead continue to return in near record numbers past Bonneville Dam. The spring and summer chinook runs have shown improvement but to a lesser extent.

The Corps has invested some $550 million in fish mitigation. Annual operation and maintenance costs for hatcheries, fish passage facilities, fish transportation and research is approximately $16 million.

Today's focus is to improve the survival rate of anadromous juvenile fish as they migrate downstream past our projects on the lower Columbia and Snake Rivers.

Alaska Oil Spill Cleanup Accomplishments

In response to the oil spill from the tanker Exxon Valdez running aground in Prince William Sound, Alaska, on March 24, 1989, the Alaska District became an operational element of the Department of Defense Joint Task Force on April 6 and was mobilized to assist in the spill's cleanup.

On April 11, the Corps Hopper Dredge YAQUINA steamed from her home port of Portland, Oregon, to assist in the cleanup effort. Arriving in Prince William Sound on April 17, the dredge began oil recovery operations the next day. Finding conventional methods of recovering oil too slow, the crew developed an innovative approach and pumped 1,500 barrels in 15 minutes. The Corps Hopper Dredge ESSAYONS arrived on 21 April.

The dredges worked various areas throughout the coastal Alaskan waters, from Prince William Sound, through the Gulf of Alaska, and into the Shelikof Strait, adjacent to Kodiak Island. During their tour of duty as oil recovery vessels, the dredges recovered more than 6,900 barrels of oil and 180 cubic yards of oil soaked sand, gravel and debris from beaches.

Given proper air support, adequate containment boom, and commitment at the earliest possible time, we believe use of hopper dredges could make a significant difference in the cleanup of large oil spills.

PROGRAM SUMMARY

Our program for FY 91 totals $292,512,000. Construction accounts for $131,100,000, or about 45 percent of each dollar; Operation and Maintenance of existing projects takes $157,004,000, or about 53 percent; and General Investigations for potential projects is allotted $4,408,000, or about two percent of each requested dollar. Our construction program includes $34,500,000 to be derived from the Inland Waterways Trust Fund. The FY 91 General Investigations program consists of 13 survey studies, including two reconnaissance studies, and five Preconstruction Engineering and Design studies. The two reconnaissance studies and four feasibility studies will be completed with FY 91 funds. The program will allow construction to proceed on eight projects. Under Operation and Maintenance, we will continue to operate and maintain 36 multiple purpose hydropower and flood control projects, as well as 38 navigation projects.

Our resource projects serve a variety of needs. I will outline our program based on the primary funding categories contained in our request.

STUDIES

Columbia River and Tributaries Study

A joint system operational review by the Corps, Bureau of Reclamation and Bonneville Power Administration is underway. These three Federal agencies, as owners and operators of the Federal Columbia River Hydropower System, have jointly acknowledged the need for a complete review of the operation and use of the existing system of projects prior to expiration of current agreements related to the Treaty with Canada and to address a variety of important water-related issues prior to renewal of those agreements.

During FY 91, emphasis will be placed on preparation of a multiple-purpose system plan for the Columbia River and its major tributaries. The system plan will address potential for further meeting multiple-purpose water resources development needs and reflect relevant aspects of the Northwest Power Planning Council's fish and wildlife and power plans.

Development of the system plan will include establishment of a Regional Forum for evaluation of regional water issues emphasizing review of the system operation of the Columbia River Basin. Public hearings will be held throughout the region to insure that input for the Regional Forum is received from affected and interested regional, local, state, and Federal Government entities and officials, public and private organizations, Indian tribes, and individuals.

Detailed feasibility studies and preparation of a report and Environmental Impact Statement (EIS) on the Vancouver Lake element of Lower Columbia River Flood Control study would be completed in FY 91.

Upper Snake River and Tributaries

The Upper Snake River and Tributaries extend from the headwaters of the Snake River in Wyoming, down to and including the Weiser River in Idaho, a distance of about 400 miles. The watershed includes about 73,000 square miles, mostly in southern Idaho.

Current water resource problems and opportunities are associated with uses of surface and ground water resources in the interest of flood damage reduction, water quality, hydropower, irrigation, public water supply, fish and wildlife, and recreation. Existing storage projects have significantly reduced flood damages; however, the threat of flooding still exists on most tributaries and some mainstem reaches. Power demand in southern Idaho has grown due to new irrigation development requiring high-lift pumping, conversion of irrigation systems to sprinklers, and growth in the food and phosphate processing industries. Another major concern is the prospect of lower flows in the Snake River resulting from projected irrigation development.

In FY 90, the Snake River in Wyoming interim study investigating flood control problems and needs at Jackson Hole, Wyoming is being completed. In response to the Water Resources Development Act (WRDA) of 1986, which authorized Federal operation and maintenance of existing levees, a decision document and EIS are being completed to address Federal assumption of levee maintenance.

FY 91 funds would be used to complete evaluation of alternative plans for the operation, management and future development of the Upper Snake River, which are being addressed in the final basin report.

Coos Bay, Oregon

Coos Bay is a major international commercial navigation port located on the southern Oregon Coast. The existing commerce is related to the forest industry, and has averaged more than five million tons per year since 1976.

The Federal deep-draft channel is inadequate to accommodate vessels calling on the port. Consequently, the vessels experience delays awaiting high tides, or must be light-loaded. In addition, the Southern Pacific railroad bridge restricts and imposes costly delays on shippers because river pilots will not transit the narrow bridge during darkness. Because of rough entrance conditions and lack of in-bay anchorage, vessels must wait at sea or in port for favorable conditions before entering or leaving the area.

FY 90 funds are being used to continue feasibility phase, including preparation of a draft report. FY 91 funds would be used to complete detailed feasibility studies and preparation of feasibility report and EIS.

Johnson Creek, Oregon

The Johnson Creek flood plain encompasses about 2,000 acres of urban development in the Portland, Oregon, metropolitan area. Flood problems in this area have become more acute due to continued urban growth. FY 90 funds are being used to initiate and complete a reconnaissance level study which will examine changed conditions in the basin and reevaluate the scope of a flood control project authorized by Section 204 of the 1950 Flood Control Act. FY 91 funds would be used to initiate the feasibility phase of the study.

Olympia Harbor, Washington

Olympia Harbor is located on the southern shore of Puget Sound at Olympia, Washington. The Port of Olympia is experiencing dramatic growth in waterborne commerce and presently handles about one million tons of commerce annually--mostly logs and wood products shipped to Pacific Rim nations. Recent trends indicate that trade will continue to increase and become more diversified.

The harbor is divided into East and West bays by a port-constructed peninsula. The 500-foot-wide by 30-foot-deep West Bay Channel dredged by the Corps in 1939 is not adequate for world fleet vessels that call on the harbor. A study completed by the port in 1984 projects continued growth in commerce as well as a need for deepening the West Bay Channel and Turning Basin.

FY 91 funds would be used to complete a feasibility phase study, which was initiated with FY 88 funds. The study is being cost shared with the Port of Olympia, the non-Federal sponsor.

Howard Hanson Dam, Washington

Howard Hanson Dam is an existing flood control project east of Tacoma, Washington. FY 90 funds are being used to initiate a feasibility study of alternatives for modifying the project for storing water for municipal and instream flow purposes. The study is being cost shared with the City of Tacoma, the non-Federal sponsor. FY 91 funds would be used to complete

the detailed feasibility studies and preparation of the feasibility report and EIS.

Tri-Cities Levees

Local officials of Kennewick, Pasco, and Richland, Washington propose modifications to Federal levees which are part of the McNary Lock and Dam project on the Columbia River. The local interests desire to lower the height of the levees in order to provide better access to the shoreline, to improve aesthetics of the waterfront, and to create development opportunities. Such lowering must be compatible with today's flood control needs.

FY 90 funds are being used to initiate and complete the reconnaissance phase of the study. FY 91 funds would be used to initiate the feasibility phase.

Willamette Basin System

The Willamette River Basin in northwestern Oregon is about 160 miles in length and contains about 12,000 square miles. Although the basin has only one-eighth the area of Oregon, it is home to nearly two-thirds of the state's population.

A total of 13 Corps reservoirs have been constructed to control floods, generate power, and provide for navigation and irrigation. Present water resource problems include flood damages, fish and wildlife protection, municipal and industrial water supply and development of additional recreation opportunities. The State of Oregon expressed strong support for this study because of its ongoing efforts to update their Comprehensive Waterways Management Plan for the basin.

FY 90 funds are being used to initiate the reconnaissance phase of the study to determine the effect of potential changes on conservation uses, downstream releases, and flood control and hydropower operation. FY 91 funds would be used to complete the reconnaissance phase of the Willamette River Basin Review Study.

Columbia River Channel Deepening

Lower Columbia River ports have been the primary shipping point for West Coast grain and feed grain exports. Increasing trade between the Pacific Northwest states and the Pacific Rim nations has accentuated the need for a deepened navigation channel to accommodate larger, deeper-draft vessels of the world fleet. The existing Federal channel restricts the use of large bulk carrier vessels to inefficient partial loading, or to delay sailing until the right combination of river flow and tides. A coalition of the Lower Columbia ports requested a study to evaluate the deepening of the navigation channel.

FY 90 funds are being used to initiate the reconnaissance phase of the Columbia River Channel Deepening Study. FY 91 funds would be used to initiate the feasibility phase of the study.

Seward, Alaska

Seward is a coastal city which is subject to flooding by several rivers and streams which pass through the community. FY 90 funds are being used to initiate and complete a reconnaissance study for Lowell Creek and Fourth of July Creek. FY 91 funds would be used to initiate the feasibility phase for Lowell Creek.

Rivers and Harbors in Alaska

The Comprehensive Rivers and Harbors in Alaska Study will identify current and future water resource problems and needs in Alaska in light of vast physical and economic changes within the state. Changes such as the growth and development of the mining and fishing industries have accelerated the need for navigation improvements, flood and storm damage reduction, water supply, fish and wildlife enhancement, and recreational development.

These needs are being examined under comprehensive interim studies for Southeast Harbors of Refuge, Resource Development Navigation Improvements, and Tanana Basin Water Resources.

FY 90 funds are being used to complete the interim feasibility report on the Southeast Harbor of Refuge. Technical analyses for the Resource Development Navigation Interim Study will be completed and detailed studies on the Tanana Basin will continue. FY 91 funds would be used to complete the detailed feasibility studies and prepare the feasibility reports and EIS for the Resource Development Navigation and Tanana Basin Studies.

Unalaska, Alaska

Unalaska is located in the Aleutian Islands on the Bering Sea. The harbor and facilities at Unalaska experience coastal flooding and storm damage during severe Bering Sea storms. FY 90 funds are being used to initiate the feasibility phase to address alternative solutions to the coastal flooding problem. FY 91 funds would be used to complete the detailed feasibility studies and prepare the feasibility report and EIS.

PRECONSTRUCTION ENGINEERING AND DESIGN

Centralia, Washington

The Centralia Flood Damage Reduction project would significantly reduce flooding on 4,600 acres in the Skookumchuck River valley in southwestern Washington and on 17,500 acres in the Chehalis River valley, including areas in the City of Centralia. Centralia is subject to average annual flood damages of about $3.6 million. The authorized project consists of structural modifications to an existing private dam on the Skookumchuck River completed by Pacific Power and Light in 1970. The modifications would enable the dam to perform flood control operations.

FY 90 funds are being used to continue work on the General Design Memorandum (GDM). FY 91 funds would be used to complete the GDM and an EIS Supplement.

Columbia River Treaty Fishing Access

Public Law 100-581 authorizes the Secretary of the Army to provide sites and facilities for fishing access on the Columbia River for four treaty Indian tribes. The law designates 21 existing sites on Federal land and requires identification of at least six additional sites to be developed with access facilities and subsequently transferred to the Department of Interior for tribal use.

FY 91 funds will be used to initiate planning and design studies for implementing requirements of the law.

Kodiak Harbor, Alaska

Significant damage is occurring to the temporary harbor facilities in St. Herman Bay which were constructed by the State of Alaska in 1982.

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Since that time, several million dollars have been spent to repair the mooring facilities.

The authorized project includes a 1,900-foot-long breakwater connecting three islands and a 20-foot-deep entrance channel that is 930 feet long and 150 feet wide. The project cost is estimated to be $15.7 million, of which $3.1 million is the local share.

Funds provided in FY 90 are being used to complete the GDM.

Little Wood River, Gooding-Shoshone, Idaho

The Little Wood River project is located in the vicinity of the cities of Gooding and Shoshone in Lincoln and Gooding Counties, Idaho. The project is a flood control project consisting of diversion, channel, and ponding facilities in two separate locations to provide off-stream diversions of Little Wood River flood flows into adjacent lava fields via the Dietrich and Milner-Gooding Canals.

Preconstruction Engineering and Design is being initiated in FY 90, and would be completed in FY 91.

Chehalis River at South Aberdeen/Cosmopolis, Washington

The cities of Aberdeen and Cosmopolis are located at the mouth of the Chehalis River where it empties into the Grays Harbor tidal estuary near the Pacific Ocean coast in the State of Washington. The project was authorized by WRDA 86.

The flood plain under study encompasses 1,394 acres on the left bank of the Chehalis River. Land use consists of urban-type development which includes residential, commercial, industrial, and vacant land. The recommended plan of improvement will protect most of the left bank flood plain at the mouth of the Chehalis River in the cities of Aberdeen and

Cosmopolis. The improvement will provide a 22,300-foot-long levee system composed of 11,500 feet of earth embankment levee, 4,740 feet of steel sheet pile floodwall, 2,380 feet of raised log storage yard, and 3,630 feet of high ground between segments.

The GDM will be completed this fiscal year. FY 91 funds would be used for plans and specifications.

CONSTRUCTION

Bonneville Second Powerhouse, Oregon and Washington

The Bonneville Lock and Dam project on the Columbia River about 40 miles upstream of Portland, Oregon, consists of an initial 10-unit powerhouse of 534,700 kilowatts, and a new second powerhouse with eight units of 558,200 kilowatts which went on line in 1982. The total installed capacity of this project is now 1,092,900 kilowatts.

Evaluation of the project's juvenile fish bypass system and construction of project support facilities are continuing. To reduce juvenile fish losses which result from fish migrating downstream and passing through the generating turbines, the Corps constructed a submerged traveling fish screen bypass system concurrent with completing the generating units. However, the efficiency of the screens at the second powerhouse in deflecting juvenile fish is low-- only about 20 percent of the fish are deflected away from the turbines into the bypass system.

During the past six years we have conducted intensive field investigations to find a solution to this problem. To protect juvenile fish, power generation is limited during the period of most intense

juvenile passage. We also continue to provide supplemental spills to assist these downstream migrants past the project. Analysis of field test results is underway and a plan for improvements is being developed. Realignment of Gibbons Creek, a part of the Steigerwald area wildlife mitigation work, is scheduled in FY 90 and FY 91.

Chief Joseph Dam, Washington

Chief Joseph Dam is on the Columbia River just upstream of Bridgeport, Washington. The initial installation of 16 generating units was completed in 1958, and construction of an additional 11 units was completed in 1979. At that time the total installed capacity was 2,069,000 kilowatts.

The initial contract to refurbish and uprate the original 16 power units is complete. This work adds an additional 388,320 kilowatts, bringing the total project installed capacity to 2,457,320 kilowatts. Additional work to correct deficiencies related to the initial upratings is still underway, but all work is expected to be complete in FY 91. Remaining work for Chief Joseph includes the correction of turbine performance deficiency, installation of a new data acquisition and control system, installation of a comprehensive security system, and miscellaneous items related to the initial uprating deficiency corrections.

The 11 hydraulic turbines installed in bays 17-27 have failed to meet the contractor guaranteed prototype efficiency of 92.5 percent. The contractor, Hitachi, has agreed to correct the deficiency under the terms of the original contract, and has provided a letter of credit for $32

million to guarantee performance. This work is progressing.

The contract for a data acquisition and control system to monitor, control and operate all 27 units has been awarded and work is underway.

The contract for a comprehensive security system was awarded in September 88. Completion is scheduled in 2nd quarter FY 90.

Grays Harbor, Chehalis and Hoquiam Rivers, Washington

Improvements to the existing Federal deep-draft navigation project at Grays Harbor in western Washington will result in transportation savings estimated at more than $15 million annually. The Port of Grays Harbor is the largest North American supplier of logs to Pacific Rim Countries of Japan, China and Korea. The project provides for deepening and widening 24.3 miles of the existing deep-draft channel, and construction of two turning basins.

Construction dredging is scheduled to start in FY 90.

Lower Snake River Fish and Wildlife Compensation, WA & ID

Lower Snake River Fish and Wildlife Compensation was authorized in 1976 to compensate for fish and wildlife losses attributed to the construction of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite lock and dam projects on the lower Snake River in Idaho and Washington.

The plan, currently estimated at $198 million, includes construction of nine fish hatcheries which will produce 27 million chinook salmon and steelhead annually. The plan also includes game bird compensation, development of on-project lands, and acquisition of off-project wildlife lands with access for fishing and hunting.

Eight fish hatcheries are presently in operation, with the final hatchery at the mouth of the North Fork of the Clearwater River at Ahsahka, Idaho, scheduled to become operational in late 1991.

Mud Mountain Dam, Washington

Mud Mountain Dam on the White River, five miles upstream of Enumclaw, Washington, is an earth and rockfill structure 425 feet high with a crest length of 700 feet. It was constructed between 1939 and 1948, with a five-year delay due to World War II. It provides flood control protection for about 7,000 acres of land, including the industrial area of Tacoma and the towns of Auburn, Kent, Sumner, Puyallup and Fife.

In the mid 1980's, instrumentation in the dam revealed that silt and sand-sized particles within the dam's core were eroding from the dam at a rate that could cause failure if not checked. Subsequently, a contract for a concrete cutoff wall through the center of the dam was awarded in July 1988 under the major rehabilitation program. Estimated cost is $37 million. The hydrofraize just recently reached a world record depth for cutoff wall excavation of 402.5 feet. The cutoff wall is scheduled for completion in June.

A National Weather Bureau analysis of the probable maximum storm that could occur in the 400-square-mile drainage area behind the dam indicated flood quantities that would overtop the dam and spillway walls. Therefore, the dam will be raised five feet under the cutoff wall contract, with completion scheduled for late 1990. The spillway walls will be raised under a separate contract to be awarded in late 1991 and completed by fall 1994.

Analysis of the dam's intake towers indicated that they would fail under loading from a design earthquake, and that they would become clogged with debris at higher flood levels. As a result, a new intake tower is under design to replace them. A contract for river diversion is scheduled to be awarded in May 1990, followed by a second contract for construction of the intake tower to be awarded in late 1991. Completion is scheduled for fall 1994.

Raising the dam and spillway walls and constructing the new intake tower is being accomplished under the dam safety program at an estimated cost of $58.2 million.

Elk Creek Lake, Oregon

Elk Creek Lake is one of three multipurpose storage projects authorized as the Rogue River Basin Project. It is located on a tributary of the Rogue River about 27 miles north of Medford, Oregon. Elk Creek, which includes a roller-compacted concrete dam, will be operated as a system with the completed Lost Creek and Applegate projects.

In FY 85, a contract was awarded for county road relocations. Construction of the dam for the $120 million project was begun in February 86. A suit was filed by the Oregon Natural Resource Council (ONRC) in March 1983 to halt construction based on alleged National Environmental Policy Act violations. The U.S. District Court of Oregon ruled in March 1987 in favor of the Government. ONRC filed an appeal with the Ninth U.S. Circuit Court of Appeals, which in June 1987 ruled that the EIS was deficient, and in November 1987 denied a motion for a rehearing.

In essence, the Elk Creek project has been terminated until the Corps addresses specified environmental issues in a supplemental EIS.

U.S. District Court orders allowed construction of the main dam and appurtenances to elevation 1563, about one-third the design height of the dam, backfilling of the right abutment key trench, aggregate processing, and quarry restoration.

An appeal of that decision was heard by the U.S. Supreme Court on January 9, 1989. On May 1, 1989, the Supreme Court unanimously reversed the June 1987 decision and remanded the ruling back to the Ninth Circuit Court, which, in turn, remanded the case to the District Court for its action. The Corps is awaiting a decision by the U.S. District Court on how to proceed.

Columbia River Juvenile Fish Mitigation Program

The Corps of Engineers' eight hydroelectric projects on the Lower Columbia and Snake Rivers are contributing factors in causing mortality to downstream migrating juvenile salmon and steelhead. Without bypass facilities to guide the fish away from the power turbines at the eight Corps dams, it is estimated that up to 85 percent of the juvenile fish could be lost in their migration past the projects. This mortality impacts a commercial and recreational fishery estimated in excess of $100 million annually.

However, as early as 1968 the Corps began implementing measures to help reduce mortality of juvenile fish. These measures were needed as a result of the Corps' expansion of the powerhouses in the late 1960's and 1970's which increased their hydroelectric capacity and diverted more river flow through the turbines and less over the spillways. Since that time, research and prototype testing of bypass systems has led to significant improvements in our ability to bypass juvenile fish safely

past the projects.

Funds appropriated in FY 88, 89 and 90 are being used to improve and provide additional bypass facilities. Our FY 91 program would continue this work at four mainstem dams and would initiate a detailed mitigation analysis that will determine the overall extent of justified fish mitigation.

New Bonneville Dam Lock, Oregon and Washington

The navigation lock at Bonneville Dam, completed in 1937, was the first major navigation lock on the Columbia River system and is the most heavily used. Because it is smaller than the locks at the seven upstream projects, it requires the breakup of normal tows, causing even more lockages. The time required for these additional lockages limits the total traffic through the lock.

This bottleneck will be eliminated by a new 86-foot-wide by 675-foot-long lock which will be compatible with the upstream navigation locks.

Planning and engineering studies were completed in FY 85. Relocation of approximately 3,600 feet of Union Pacific Railroad mainline and an interstate highway off-ramp were completed in FY 87. An excavation contract, awarded in July 1987, was completed in FY 89. The upstream guard wall contract was awarded in January 1989, and is scheduled for completion in February 1991. The contract for construction of the lock itself was advertised in September 1989 and is scheduled for award in March 1990. The entire project is scheduled to be completed in 1993.

OTHER ONGOING CONSTRUCTION PROJECTS

Mount St. Helens, Washington

A permanent solution to the sediment problem resulting from the May 1980, eruption of Mount St. Helens in southwestern Washington was authorized by PL 99-88 and includes construction of a sediment retention structure on the North Fork Toutle River, minimal levee improvements at Kelso, Washington, and dredging downstream during construction and potentially, in the future, when the impoundment area has filled and sediment begins to pass over the spillway. Local sponsors are participating in the project by providing lands, easements and right-of-way, as well as, a cash contribution.

The main contract for construction of the sediment retention structure was awarded in December 1986. The structure consists of an embankment dam, a spillway, and a concrete outlet structure. The dam will be 189 feet high and 1,800 feet long, with a spillway crest height of 125 feet. Construction has progressed on schedule, and the cofferdam began trapping sediment in the fall of 1987. The dam is now essentially complete.

Two other elements of the authorized sediment control project, dredging in the Cowlitz River and levee improvements at Kelso, began in summer 1988 and were completed in December 1988. The fish collection facility is trapping fish and was transferred to the local sponsor in September 1989.

St. Paul Island Harbor, Alaska

St. Paul is the northernmost island of the Pribilof Island group of Alaska, which is located adjacent to fertile bottom fishing resources as well as potential oil and gas fields of the Norton, St. George, North Aleutian, and Navarin Basins. The project for navigation improvements at St. Paul includes construction of a 1,800-foot-long breakwater and a mooring area to service commercial and subsistence fishing fleets.

The city completed construction of the General Navigation Features (GNF) of the project in December 1989 and seeks to obtain reimbursement, as provided by Section 204(e) of WRDA 86, for the Federal share of the GNF project costs. Federal payment for construction is expected in March 1990.

Snettisham, Alaska

The first phase (Long Lake) of the Snettisham hydroelectric project in Alaska was completed in 1976. In 1983, the Alaska Power Administration's power demand forecast for the Juneau area indicated that additional power generation at the Snettisham project would be needed in the 1986-87 time frame. In FY 84, work was begun on the second phase (Crater Lake), which provides for construction of a power tunnel from Crater Lake to the existing powerhouse and installation of an additional 27,000-kilowatt unit. Work has been continuing since that time.

In October 1988, the lake tap for the second phase contract was executed with outstanding success. It was the highest head lake tap completed in the United States to date. Power was on-line in May 1989.

OPERATION AND MAINTENANCE

Powerhouse Repair and Modernization

To curb an increasing frequency of breakdowns and lengthier repairs at our powerhouses, we continue to repair and modernize our power generating equipment. Repair and modernization work at Bonneville Dam will continue with FY 90 and 91 funds.

Major rehabilitation of the turbines and generators at John Day Dam on the Columbia River, 26 miles upstream from The Dalles, Oregon, will continue with FY 90 and 91 funds. Due to its size and location, the project is a key plant in the Northwest hydropower system. The rehabilitation work is critical for efficient operation of the regional power grid.

Oregon Coastal Harbors

In FY 89, the dredge YAQUINA was very successful in maintaining Oregon coastal projects. Improvements to the jetty systems at the Umpqua and Coos Bay projects and installation of pile dikes at Rogue River continue to be successful in reducing maintenance dredging workload. Also, the dredge YAQUINA continues to be a very effective and efficient dredge at these projects.

Last year, the YAQUINA worked at the Chetco, Coquille, Rogue, Siuslaw, Umpqua and Yaquina Bay and Coos Bay projects for 74 days, and removed a total of 731,800 cubic yards of material. Contractor dredges at the same time removed a total of 587,000 cubic yards of bottom materials from Rogue River, Coos Bay and Chetco River projects.

MISCELLANEOUS

Wynoochee Lake, Washington

To demonstrate the feasibility of non-Federal Operation, Maintenance, Repair and Rehabilitation (OMR&R) of a Federal multi-purpose water resources project, PL 100-676, Section 4(t), authorized the Secretary of the Army to modify the existing project contract to permit OMR&R of the Wynoochee Lake project by the City of Aberdeen, Washington.

The Seattle District has prepared a plan of action to transfer OMR&R of the project to the city. As the Government retains title to the project, the Corps has a responsibility for its safe operation, for accomplishing its authorized purposes, and for insuring that maintenance levels and skills are adequate to insure the continued viability of the project.

The amendment to the existing water storage contract transferring OMR&R to the city has been tentatively agreed to by both parties. It is anticipated that it will be consummated in mid 1990.

Navy Homeport, Everett, Washington

The U.S. Navy is constructing a homeport for a Carrier Battle Group in Puget Sound at Everett, just north of Seattle. Offshore work involves dredging and excavation of about 3.3 million cubic yards, of which about one million cubic yards of contaminated sediments are to be capped in open water at a depth of approximately 350 feet.

The Navy and Corps were sued after the Corps issued a permit to the Navy. The court enjoined the Navy's homeport project. Subsequently, the Navy, Corps, and plaintiffs entered into negotiations and reached

agreement to settle the case in December 1988. The project was split into three separate elements, each subject to separate permits and environmental review.

The Navy began dredging for the first element in October 1989. Dredging will continue on a 24-hour a day basis and is expected to be completed by March 1990. Construction for the first element is to be complete and carrier berthing started by June 1992.

Continuing Authorities Program

The Continuing Authorities Program has continued to be active under the Sections 14, 103, 107, 205 and 208 authorities.

In FY 89, construction was initiated for the Section 107 project at Tongue Point, Oregon. Construction of this project was completed in early FY 90. Construction was initiated on the St. George, Alaska Section 107 project in FY 89, and continues in FY 90.

Construction was initiated for the Section 14 project at Sauk River, Washington and the Section 205 project for Elwha River at the Lower Elwha Reservation, Washington in FY 89. Both were completed in early FY 90. Preparation of plans and specifications for the Malheur Lake, Oregon, Section 205 project was completed in FY 89 and construction was initiated in early FY 90. Construction was completed in FY 89 on the Section 103 project to reduce shore erosion problems at Lincoln Park Beach in Seattle. Two Section 14 projects are scheduled to start in FY 90.

Feasibility studies and preparation of plans and specifications continue for other locations in Alaska, Idaho, Oregon and Washington.

SUMMARY

The FY 91 program of $292,512,000 for the North Pacific Division is $292,512,000. Construction General accounts for $131,100,000; Operation and Maintenance for $157,004,000; and General Investigations for $4,408,000.

JUSTIFICATIONS

Mr. BEVILL. Thank you. We will insert the justification material for the North Pacific Division in the record at this point, without objection.

[The information follows:]

Justification of Estimates for Civil Functions Activities
Department of the Army, Corps of Engineers
Fiscal Year 1991

SUMMARY NORTH PACIFIC DIVISION

	FY 1990 Allocations $	FY 1991 Request $	Increase or Decrease $
General Investigations			
Surveys	3,641,000	1,961,000	- 1,680,000
Preconstruction Engineering and Design	1,119,000	2,447,000	+ 1,328,000
Construction, General			
Construction	92,695,000 1/	131,100,000 2/	+38,405,000
Operation and Maintenance, General			
Project Operation and Maintenance	152,400,000	157,004,000	+ 4,604,000
TOTAL	249,855,000	292,512,000	+42,657,000

1/ Includes $17,248,000 to be derived from the Inland Waterway Trust Fund.

2/ Includes $34,500,000 to be derived from the Inland Waterway Trust Fund.

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APPROPRIATION TITLE: General Investigations, Fiscal Year 1991

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
1. SURVEYS - NEW: None					
2. SURVEYS - CONTINUING					
2a. Navigation Studies: The amount of $211,000 is requested to continue one and complete two feasibility-phase navigation studies.					
Oregon					
Columbia River Navigation Channel Deepening Study, (Also WA)	1,580,000	0	580,000	100,000	900,000

Lower Columbia River ports have been the primary shipping point for West Coast grain and feed grain exports for many years. More than 35 million tons of commerce valued at $7 billion were shipped to or from Lower Columbia River ports in 1988. Increasing trade between the Pacific Northwest states and the Pacific Rim nations has accentuated the need for a deepened navigation channel in the Lower Columbia River, to accommodate larger, deeper-draft vessels. The existing authorized 40-foot channel depth restricts larger bulk carrier vessels to inefficient partial loading, or to delay sailing until the right combination of river flow and tides and risk possible damage when navigating the Lower Columbia River. For these reasons, a coalition of the Lower Columbia River Ports (the Ports of Portland, St. Helens, and Astoria in Oregon, and Vancouver, Kalama, Longview, and Woodland in Washington) have requested a study be conducted to evaluate the potential for deepening the navigation channel, to allow deep draft vessels to sail fully loaded safely and thereby reduce commodity movement costs. In a meeting on January 10, 1989, representatives of the Port of Portland, representing the Lower Columbia Ports coalition, agreed to be the non-Federal sponsor and expressed their willingness to meet the study cost sharing requirements of the Water Resources Development Act of 1986.

1200

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2a. Navigation Studies: Oregon, Columbia River Navigation Channel Deepening Study, (Also WA) (Cont'd)

The study area would begin at the mouth of the Columbia River and extend upstream to the vicinity of the Port of Vancouver, Washington (approximately river mile 105), and also include the Lower Willamette River from its confluence with the Columbia River (river mile 101.5) upstream to the vicinity of the Port of Portland, Oregon (approximately river mile 11).

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate feasibility studies. The preliminary estimated cost of the feasibility phase is $2,000,000 which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services.

A summary of study cost sharing is as follows:

Total Estimated Study Cost	$2,580,000
Reconnaissance Phase (Federal)	580,000
Feasibility Phase (Federal)	1,000,000
Feasibility Phase (non-Federal)	1,000,000

The Reconnaissance Report of the District Engineer is scheduled for completion in December 1990. The final Feasibility Report of the Division Engineer is scheduled for completion in August 1994.

Coos Bay	538,000	400,000	103,000	35,000	0

Coos Bay, a major commercial navigation port on the Oregon Coast, is located about 200 miles south of the mouth of the Columbia River and 445 miles north of San Francisco Bay. From the 45-foot deep bar at the mouth to its upper end, the bay is 15 miles long and averages 1,200 feet in width at low tide. Deep-draft commerce is forest-industry related and has averaged over five million tons per year since 1976. The existing interior

1201

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2a. Navigation Studies: Oregon, Coos Bay (Cont'd)

deep-draft channel is 35 feet deep, varies in width from 300 to 400 feet, and is inadequate to accommodate world fleet vessels calling on the port. Consequently, vessels experience costly delays awaiting favorable tides or are light loaded. The Southern Pacific Transportation Company railroad bridge spanning the channel at river mile 9.0 is only 197 feet wide and also imposes costly delays on shippers because river pilots will not transit the narrow bridge opening during darkness. Because of rough entrance conditions and lack of suitable in-bay anchorage, vessels must wait at sea or port for favorable conditions before entering or leaving the project area. A reconnaissance report, completed in December 1987, determined there is economic justification and Federal interest for a feasibility phase study of a deeper (and possibly wider) navigation channel, as desired by local interests. However, replacement of the railroad bridge was found to not be economically feasible. A feasibility study cost sharing agreement was signed by the sponsor in December 1988, and initial Federal funding for the feasibility phase was provided in January 1989.

Fiscal Year 1990 funds are being used to continue feasibility phase studies, including preparation of a draft report. The funds requested in Fiscal Year 1991 will be used to complete the study, the report, and the draft local cooperation agreement for the project. The estimated cost of the feasibility phase is $576,000, which is being shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$826,000
Reconnaissance Phase (Federal)	250,000
Feasibility Phase (Federal)	288,000
Feasibility Phase (Non-Federal)	258,000
Feasibility Phase (Non-Federal In-Kind)	30,000

The reconnaissance phase was completed in December 1988. The Division Engineer's report on the feasibility study is scheduled for completion in April 1991.

1202

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
2a. Navigation Studies: (Cont'd)					
Washington					
Olympia Harbor	579,000	369,000	134,000	76,000	0

Olympia, Washington, which is the State capitol and has a population of 29,000, is located at the extreme southern end of Puget Sound. Olympia Harbor is divided into West and East Bays by a man-made peninsula. The West Bay deep-draft navigation channel was dredged by the Corps of Engineers in 1939 and provides a channel from 300 to 500 feet wide and 30 feet deep. However, the existing Federal project dimensions are not adequate for the world fleet of vessels that call on the Port of Olympia. Approximately one million tons of commerce, mostly logs and wood products, currently are handled annually at Olympia Harbor. A comprehensive plan, adopted by the Port in July 1988, indicates continued growth in commerce and need for channel and turning basin modifications. The Port of Olympia's "Port Terminals Five Year Capital Improvement Plan" of February 1984 also indicates a need for channel and turning basin modification as well. Accordingly, the Olympia Harbor study is addressing these navigation needs.

Fiscal Year 1990 funds are being used to complete field and office studies and prepare a draft of the feasibility report for review by the Division Engineer. The funds requested for Fiscal Year 1991 will be used to complete the feasibility phase of the study. The estimated cost of feasibility phase is $858,000 which is being shared on a 50-50 percent basis by Federal and non-Federal interests. The Port of Olympia, local sponsor, is cost sharing on a 50-50 percent basis the feasibility phase. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,008,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	429,000
Feasibility Phase (non-Federal)	429,000

1203

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
2a. Navigation Studies: Washington, Olympia Harbor (Cont'd)					
The reconnaissance phase was completed in August 1988. The feasibility study and final report of the Division Engineer is scheduled for completion in June 1991.					
SUB-TOTAL - CONTINUING SURVEY NAVIGATION STUDIES	2,697,000	769,000	817,000	211,000	900,000
2b. Flood Damage Prevention Studies: The amount of $1,708,000 is requested to initiate three, and complete four feasibility-phase and complete two reconnaissance-phase flood damage prevention studies.					
Alaska					
Seward	698,000	0	200,000	125,000	373,000
Seward is located approximately 120 miles south of Anchorage, Alaska. The area is characterized by steep gradient streams draining nearby mountains where landslides and erodible streambanks are common. It has a history of flooding incurred by sudden breaches of debris blocked streams. A principal study element will be the Lowell Creek Flood Control Project, a dam and tunnel constructed by the Corps of Engineers in 1940 to divert flood flows from a developing residential and commercial area. The area immediately downstream of the diversion dam in the old natural drainage, has experienced significant development and now includes a large three-story senior citizens residence, a hospital and clinic, several private residences, and all associated infrastructure. The potential for loss of life and catastrophic damages have greatly increased since the project was constructed. The existing tunnel has undergone major repairs to its concrete and railroad-rail-reinforced floor and walls due to debris erosion. During the 1986 flood a 10-foot long boulder lodged in the tunnel, indicating the extremely high energy environment of the local drainage area and flow regime through this tunnel. Also water came within six inches of overtopping the emergency spillway at the					

1204

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Alaska, Seward (Cont'd)

tunnel entrance. Another principal study element will be Fourth-of-July Creek, where a state prison and large commercial developments are threatened from flooding. During the 1986 flood the Seward area suffered about $4 million in damages.

Fiscal Year 1990 funds are being used to fully fund the reconnaissance phase for the Lowell Creek and Fourth of July Creek Studies. Fiscal Year 1991 funds would be used to initiate the feasibility phase for the Lowell Creek. The preliminary estimated cost of the feasibility phase is $1,476,000 which is to be shared on a 50-50 basis by the Federal Government and the local sponsor. Up to one-half of the non-Federal share may be in-kind services. A summary of the cost sharing is as follows:

Total Estimated Study Cost	$1,196,000
Reconnaissance Phase (Federal)	200,000
Feasibility Phase (Federal)	498,000
Feasibility Phase (Non-Federal)	498,000

The Reconnaissance Report of the District Engineer for Lowell Creek and Fourth of July Creek is scheduled for completion in January 1991. The Feasibility Report of Division Engineer for Lowell Creek is scheduled for completion in November 1992.

Unalaska	513,000	187,000	190,000	136,000	0

Unalaska is located approximately 800 miles southwest of Anchorage in the Aleutian Islands on the Bering Sea. The harbor and facilities at Unalaska are exposed to severe Bering Sea storms. Dutch Harbor at Unalaska serves as an important deep-draft port and center for transshipment of commercial goods (fish products, offshore oil exploration equipment, materials for military construction in the Aleutians, etc.) within the region and to/from the Orient. The Coast Guard ice breaking ships also utilize this port and harbor from time

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Alaska, Unalaska (Cont'd)

to time. The primary problems here are associated with coastal flooding and storm damage which continues to be the cause of relatively high annual maintenance costs associated with maintaining the local road system and buried utilities.

Fiscal Year 1990 funds will be used to initiate the feasibility phase of the study. Funds requested for Fiscal Year 1991 will be used to continue and complete the draft feasibility study, which will require hydrologic data collection and preliminary hydraulic and geotechnical design as well as environmental and economic analysis. The preliminary estimated cost of the feasibility phase is $644,000, which is to be shared on a 50/50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of cost sharing is as follows:

Total Estimated Study Cost	$839,000
Reconnaissance Phase (Federal)	187,000
Feasibility Phase (Federal)	326,000
Feasibility Phase (Non-Federal)	326,000

The reconnaissance phase was initiated in Fiscal Year 1989 and is scheduled for completion early in 1990. The feasibility study is scheduled for completion in December 1991.

Rivers and Harbors	7,736,000	6,763,000	577,000	396,000	0

Vast physical and economic changes being experienced in Alaska have resulted in numerous existing and potential water resource problems, which are centered in a few key areas of the State. These changes include growth in mineral development, coal and oil exploration and extraction, development and diversification of the fishing industry to harvest the bottomfish resource, changed timber harvesting practices, development of large scale agriculture, natural resources export to Pacific Rim nations, increases in population, and

1206

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Alaska, Rivers and Harbors (Cont'd)

tourism. As a result there is an accelerated need for low-cost power, navigation improvements, shore and bank protection, and flood damage reduction. The purpose of this study is to identify these current and potential future water resource problems and needs, and to develop alternative plans to address them.

Statewide, the Resource Development Navigation Interim Study is focusing on navigation improvements to enable less costly transportation of energy resources including minerals, coal, oil, and gas at numerous Alaskan communities. Mineral exploration and development is occurring throughout Alaska, especially in the western and southeastern areas of the State where development is dependent on water transportation. Western Alaska also needs navigation improvements for general cargo because air freight is the only other means of cargo shipment. Isolated communities are heavily dependent on delivery of fuel and other essential goods by water, since no roads exist in most areas. These improvements could also aid in the development of valuable resources such as timber and minerals. Harbor and navigation safety needs are being evaluated in the Southeast Harbors Interim Study. The Tanana Basin Water Resources Study is considering navigation and other related water resource problems in central Alaska.

Fiscal Year 1990 funds will be used to incorporate review comments and complete the interim feasibility report on the Southeast Harbors of Refuge. Resource Development Navigation study investigations will complete technical analyses on those sites that demonstrate economic feasibility. Information on resource marketability and development schedules will be presented. A draft comprehensive report and environmental document will be initiated that addresses the potential multiple use of harbor facilities and navigation improvements for transporting minerals, coal, and energy resources. The Tanana Basin Water Resource Study will include hydrographic surveys of the shoals obstructing barge traffic and hydrologic studies to define expected flow conditions. A draft report to solve navigation and flooding problems will be prepared.

1207

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Alaska, Rivers and Harbors (Cont'd)

Fiscal Year 1991 funds will be used to incorporate revisions to the draft report resulting from public review of the Resource Development Navigation study. The Tanana Basin Water Resource Study will be completed, and include engineering, economic, and environmental analyses of alternative plans to resolve navigation and flooding problems in the basin.

Study	Completion Schedule
Comprehensive Studies:	
S.E. Alaska Harbors of Refuge	Feb 1990
Resource Development Navigation	Jul 1991
Tanana Basin Water Resources Study	Sep 1991

Idaho

Columbia River & Tributaries (Also MT, NV, OR, WA, & WY)	21,423,000	20,996,000	366,000	61,000	0

The Columbia River drains an area of 259,000 square miles in Northwestern United States and Southwestern Canada. About 15 percent, or 39,500 square miles, lies in British Columbia. From its source in Columbia Lake, British Columbia, the river flows over 1,200 miles in its southwestward course to the Pacific Ocean. Total mean annual runoff is about 200 million acre-feet; the Canadian portion contributes about 50 million acre-feet.

The Columbia River System is the most heavily developed and vital resource to the economy and way of life of residents of the Pacific Northwest. Continued growth in the Pacific Northwest has increased the demand for both consumptive and non-consumptive uses of the Columbia River. These uses include inland navigation, flood

1208

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Idaho, Columbia River and Tributaries (Cont'd)
(Also MT, NV, OR, WA, & WY)

damage reduction, hydropower generation, irrigation, M&I water supply, water oriented recreation, and anadromous fish passage. In recent years, interest in providing improved passage of anadromous fish at the existing Lower Columbia and Lower Snake River projects has increased significantly. This interest, combined with a general concern for environmental issues, has led to a more complicated water management condition for the Columbia River and its major tributaries. The Columbia River and Tributaries Study is addressing these often competing river uses and will lead to an operational and management plan for the Columbia River System which will optimize the multiple use aspects of the river system.

Several other factors are influencing the scope and depth of the Columbia River and Tributaries Study. The Pacific Northwest Electric Power Planning and Conservation Act (P.L. 96-501) created the Northwest Power Planning Council and directed it to develop regional plans and programs related to electric energy conservation, renewable and other energy resources, and protecting, mitigating, and enhancing fish and wildlife resources of the Columbia River and its major tributaries.

With many of the projects of the Columbia River Basin authorized or licensed thirty to fifty years ago it is necessary to determine whether the Columbia River System, as presently developed and operated, meets current and future needs. Accordingly, one of the major objectives of the Columbia River and Tributaries Study is to determine what changes, if any, should be made to the current operation of the existing projects to insure that use of the river system is consistent with current and future needs of the region. With the growing demand for water from the Columbia River System for both consumptive and non-consumptive uses, the adequacy of basin storage is also being reviewed. Studies to date indicate that with the present level of development, about 43.5 million acre- feet of storage, it will become increasingly difficult to fully meet the growing multiple-purpose needs of the region. The System Plan for the Columbia River and its major tributaries will include a priority ranking of further Corps activities and as appropriate, recommend projects and other measures for implementation, so that the region's water resource needs can be met.

1209

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Idaho, Columbia River and Tributaries (Cont'd)
(Also MT, NV, OR, WA, & WY)

While many system operational studies have been completed on river conditions during the course of the study, the region has been without a central focus for all agencies and interests since the demise of the Pacific Northwest River Basins Commission in the early 1980's. The region has been feeling the lack for several years and actions to fill that void have begun to emerge during Fiscal Year 1989. Current Corps activities during late Fiscal Year 1988 and in Fiscal Year 1989 have been to explore the need for a full scale review of all major projects and their interrelation to the river system. A brief outline plan of study was prepared by the Corps in Fiscal Year 1989 and formed the basis for discussions with the U.S. Bureau of Reclamation and Bonneville Power Administration officials early in Fiscal Year 1990.

To address urgent needs of the system, selected feasibility studies have been initiated and completed including: addition of power generation at Libby Reregulating Dam, MT; McNary Second Powerhouse, WA-OR; Bonneville Navigation Lock Replacement, WA-OR; addition of power generation at Lucky Peak Dam, ID, Blue River Dam, OR; Fall Creek Dam, OR; flood damage reduction for the Yakima River at Union Gap, WA, and for the Rivergate North Portland Area, OR; additional project purposes for McNary Dam, WA-OR; and, extension of navigation to Central Washington.

During Fiscal Year 1990, detailed feasibility studies will continue on the Vancouver Lake element of the Lower Columbia River Flood Control, OR and WA Interim. Also, development of the System Plan will be continued, including establishment of a Regional Forum for evaluation of regional water issues emphasizing review of system operation. Joint Public hearings will be held through the region, organizational structure for the Forum will be put in place, development of system planning models will continue, and issues and scenarios to be evaluated in the models will be defined and formulated. Preparation of draft report text will continue and the study will continue to be coordinated with agencies and the public. A plan of action, scope of work and detailed study cost estimate will be prepared to initiate an interim cost shared feasibility study.

1210

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Idaho, Columbia River and Tributaries (Cont'd)
(Also MT, NV, OR, WA, & WY)

During Fiscal Year 1991, detailed feasibility studies will be completed on the Vancouver Lake element of the Lower Columbia River Flood Control, OR and WA Interim. The Regional Forum and work on the System Plan will be continued.

Active Interim report completion schedules are:

STUDY	COMPLETION SCHEDULE
System Plan and System Operation Review	1/
Lower Columbia River Flood Control, Vancouver Lake	Jun 1991

Upper Snake River and Tributaries (Also WY)	8,288,000	7,607,000	470,000	211,000	0

The Snake River and Tributaries extends from the headwaters of Snake River in Jackson Hole, Wyoming down to and including Weiser River basin in Idaho, a distance of about 400 miles. The watershed includes about 73,000 square miles, most of which is in southern Idaho. Current water resource problems and opportunities are associated with uses of surface and groundwater resources in the interest of flood damage reduction, fish and wildlife, hydropower, irrigation, and recreation.

1/ Pending Revision, likely completion date for CR&T system plan and system operation review reoriented to a Regional Forum to review system operation is November 1992.

1211

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Idaho, Upper Snake River and Tributaries (Also WY) (Cont'd)

Existing storage projects in the basin significantly reduce flood damages, however, the threat of flooding still exists on most tributary streams and along the Snake River above American Falls Reservoir and in the reach from Swan Falls Dam to near the confluence of the Weiser River. Provision of adequate flows for passage of anadromous fish in the Lower Snake River below Hells Canyon Dam is a principal concern of the Idaho Department of Water Resources (IDWR) and the Northwest Power Planning Council. An associated concern is the prospect of lower flows in the Snake River resulting from projected irrigation development. In addition, power demand in southern Idaho has grown due to new irrigation development requiring high-lift pumping, conversion of irrigation systems to sprinklers, and growth in the food and phosphate processing industries.

There are three interim studies and the final basin report actively underway in Fiscal Year 1990 which are addressing the water resources needs of the Upper Snake River. The interim studies include; Big Lost River, Weiser River Basin, and Snake River in Wyoming.

OWYHEE RIVER: Unfavorable preliminary report completed in January 1989.

BIG LOST RIVER: High runoff in recent years and an earthquake in 1983, which caused subsidence and increased flow from springs, caused an increase in flooding problems. The 20-year flood of 1965 caused the greatest amount of damages on the Big Lost River. Overbank flooding and rising groundwater inundated 18,000 acres resulting in $3,020,000 of damages (1989 price level). The current study is considering upstream diversion of flows to alleviate flooding. Fiscal Year 1990 funds are being used to complete detailed studies and complete final report in November 1990.

1212

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Idaho, Upper Snake River and Tributaries (Also WY) (Cont'd)

WEISER RIVER BASIN: Detailed studies indicate the Galloway storage site on the Weiser River could substantially reduce power losses due to Columbia River hydrosystem regulation under the Northwest Power Planning Council's Water Budget for juvenile anadromous fish flows. The project would also directly benefit anadromous fish and is strongly supported by the State of Idaho. The Chief of Engineers has determined that the undertaking of this project is within the capability of non-Federal interests and has directed the preparation and distribution of a technical report on completed studies. Fiscal Year 1990 are being used to complete that report in March 1990.

SNAKE RIVER IN WYOMING: Flood damage occurring primarily on flood plains near Jackson, Wyoming is being investigated. This study is also addressing Section 840, 1986 Water Resources Development Act, which provides that operation and maintenance of Jackson Hole Snake River levees are the responsibility of the Secretary of the Army. The potential for flood damages has increased substantially during the past 2 decades as land in the Jackson Hole area has continued to change from agricultural to residential. Fiscal Year 1990 funds are being used to complete feasibility studies and prepare a report in November 1990.

FINAL BASIN REPORT: Work on the final report will be continued in Fiscal Year 1990. Study effort is concentrating on identifying alternative plans for the operation, management, and future development of the Upper Snake River and its major tributaries. Fiscal Year 1991 funds, will be used to continue evaluation of proposed measures and projects for plan formulation and to complete preparation of the final report in November 1991.

1213

29 JAN 1990

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
2b. Flood Damage Prevention Studies: (Cont'd)					
Oregon					
Johnson Creek	532,000	128,000	160,000	140,000	104,000

Johnson Creek drains an area of 54 square miles in northwestern Oregon and empties into the Willamette River. The Johnson Creek flood plain encompasses about 2,000 acres almost all within urban growth boundaries of Gresham, Portland, and Milwaukie, Oregon. The maximum flood of record, that of December 1964, would have caused an estimated $15 million in damages under October 1988 prices and conditions of development. Johnson Creek floods almost annually, and for many years it has regularly damaged or threatened damage to heavily populated areas along its banks, especially in the southeast Portland metropolitan area. The situation has become more acute in recent times with the development in the drainage basin. Such growth has increased the potential for rapid run off. Flood effects include direct damages to homes and other facilities, lowering of property values, and restriction of development, impassable roads, and streambank erosion, and sediment deposition. Also, during dry periods, the water becomes odorous and a source of contamination. The project authorized by Section 204 of the 1950 Flood Control Act, will substantially reduce flooding of urban industrial, commercial, and residential areas.

The authorized project was not constructed because the previous sponsor, the Metropolitan Service District (an organization representing interests of various municipalities, including the City of Portland), was unable to obtain the cooperation of the several municipalities involved in the project. The present sponsor, the City of Portland, believes it will obtain that cooperation. Regardless, the city fully intends to sponsor that portion of the project which falls within its boundaries.

1214

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Oregon, Johnson Creek (Cont'd)

Fiscal Year 1990 funds will be used to initiate and complete the reconnaissance study at full Federal expense by December 1990. It will examine changed basin conditions and re-evaluate the project scope. Funds requested in 1991 will be used to initiate the feasibility study. The preliminary estimated cost of the feasibility phase is $488,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$776,000
Previous Study Cost	128,000
New Start (Cost-Shared) Study	
Reconnaissance Phase (Federal)	160,000
Feasibility Phase (Federal)	244,000
Feasibility Phase (Non-Federal)	244,000

The Reconnaissance Report of the District Engineer is scheduled for completion in December 1990. The Division Engineer Report on the feasibility study is scheduled for completion in August 1993.

Willamette River Basin Review Study	600,000	0	286,000	314,000	0

The Willamette River Basin, containing an area of approximately 12,000 square miles, is located in northwestern Oregon. As the most populated area in Oregon, the basin is highly developed. Many miles of levees and channel improvements have been constructed for flood protection. During the last 40 years, a total of 13 Corps' reservoirs have been constructed to control floods, generate power, and provide water for navigation and irrigation. Present water resource problems include flood damages, which are still considerable; fish and wildlife conservation; municipal and industrial water supply; and development of additional recreation opportunities. In addition, projected irrigation development in the basin has not

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1215

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Oregon, Willamette River Basin Review Study (Cont'd)

materialized at the rate previously envisioned, leaving considerable surpluses of stored water which could be reallocated to other vendible purposes. Local interests and Congressional representatives have asked that the Corps re-examine the operation and storage allocation of its reservoirs with a view toward authorizing additional project purposes and modifying reservoir operation. The State of Oregon has expressed strong support for early initiation of the Corps' study because of its ongoing efforts to update its Comprehensive Waterways Management Plan for the basin. The State was instrumental in seeking Congressional authorization for the investigation. Because of the numerous governmental jurisdictions involved and its own strong interest, the State would be the logical study sponsor.

The 18-month reconnaissance phase of the study would concentrate on operation of the Corps' existing reservoirs. In Fiscal Year 1990, allocation of stored water, methods of reservoir operation, and Congressionally authorized project purposes would be examined to determine if the system could better serve current and anticipated water resources needs. The views of the Federal, State, and local governments and the general public would be obtained regarding existing problems and needs. Major opportunities to improve reservoir operation would be identified and reconnaissance level engineering and economic studies would be initiated to determine the effect of potential changes on conservation uses, downstream releases, and flood control and hydropower operation.

Fiscal Year 1991 funds would be used to complete a reconnaissance report of the District Engineer in June 1991.

1216

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
2b. Flood Damage Prevention Studies: (Cont'd)					
Washington					
Tri-Cities Levees	925,000	0	150,000	225,000	550,000

The existing McNary Lock and Dam located at River Mile 292 of the Columbia River, was completed by the Corps of Engineers in 1953. The project raised the normal water surface about 85-feet and created a lake extending 64-miles upstream. The lake has a water surface area of 38,800 acres with 242 miles of shoreline. The cities of Pasco, Kennewick, and Richland in Washington (known as the Tri-Cities area) are protected by 16.8 miles of levees; drainage and groundwater levels landward of these levees are controlled by 15 pumping plants, a system of collection channels, and ponding areas. Construction of McNary Lock and Dam raised the river level about 5 to 10 feet at Kennewick and Pasco. The water level raise was less at Richland.

Modification to the Corps-maintained levees are being proposed by local officials that would lower the height of a portion of the levees. Local interests' objective is to provide for better access to the shoreline and to improve the waterfront. Reduced flood potential may have occurred over the years because of upstream storage that have been constructed since the McNary levees were designed.

Another issue to be addressed by the study concerns the interior drainage system. In the three decades since levee completion, the drainage areas and potential ponding areas have experienced major urban growth and development. This has increased the magnitude of potential interior floods due to increased runoff and reduced times of concentration.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Washington, Tri-Cities Levees (Cont'd)

Fiscal Year 1990 are being used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $1,550,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$1,700,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	775,000
Feasibility Phase (non-Federal)	775,000

The Reconnaissance Report of the District Engineer is scheduled for completion in December 1990. The final Feasibility Report of the Division Engineer is scheduled for completion in August 1993.

Lower Snohomish River	479,000	0	150,000	100,000	229,000

The Snohomish River Valley is located in western Washington and empties into Puget Sound at Everett, Washington. The existing flood control works, the majority of which are levees constructed by the local diking districts, are inadequate. Current field inspections by the Corps show that the majority of the existing levee system is not adequate for a five year flood event. The Snohomish Valley is subject to scattered areas of local flooding each year and major flooding occurs every 2 to 5 years. Maximum flow of 141,000 cfs occurred at Monroe in 1975 and caused damages of approximately $20,000,000. Other major floods occurred in 1948, 1956, 1977, and 1986. Average annual flood damages of the entire Snohomish basin, including the Snoqualmie and Skykomish Rivers, are estimated to be $8,000,000 with the majority of these damages in the Snohomish River Valley.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2b. Flood Damage Prevention Studies: Washington, Lower Snohomish River (Cont'd)

Fiscal Year 1990 funds would be used to fully fund the reconnaissance phase at full Federal expense. The funds requested for Fiscal Year 1991 will be used to initiate the feasibility phase of the study. The preliminary estimated cost of the feasibility phase is $658,000, which is to be shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

Total Estimated Study Cost	$808,000
Reconnaissance Phase (Federal)	150,000
Feasibility Phase (Federal)	329,000
Feasibility Phase (non-Federal)	329,000

The Reconnaissance Report of the District Engineer is scheduled for completion in January 1991. The final Feasibility Report of the Division Engineer is scheduled for completion in September 1993.

SUB-TOTAL SURVEYS - CONTINUING FLOOD DAMAGE PREVENTION STUDIES	40,194,000	35,681,000	2,549,000	1,708,000	1,256,000

2c. Shoreline Protection Studies: None

2d. Special Studies: None

2e. Comprehensive Studies: None

2f. Project Review Studies: The amount of $42,000 is requested to complete one project review study.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
2f. Project Review Studies: (Cont'd)					
Washington					
Howard Hanson Dam, Additional Storage	237,000	100,000	95,000	42,000	0

Howard A. Hanson Dam is an existing Federal earthfill and concrete dam which provides winter flood control and summer low-flow enhancement. The project was completed by the Corps of Engineers in 1962 and is located on the Green River about 35 miles southeast of Seattle and about 35 miles due east of Tacoma in King County, Washington. Earlier studies have indicated that there is an opportunity to significantly increase summer water storage at the reservoir to provide needed municipal water supply, enhance anadromous fish, and to a lesser degree improve downstream recreation. The severe 1987 drought in the Pacific Northwest has intensified the need for additional sources of water supply in the rapidly growing Seattle-Tacoma urban area, and Howard Hanson Dam and Reservoir could provide a least-cost source of water to satisfy this demand. Changes to the dam and reservoir to permit additional storage which will be studied include: modification of the drainage tunnel in the right dam abutment, clearing of some reservoir vegetation, and modification to the existing 48-inch fish bypass pipe.

Feasibility studies to be conducted in Fiscal Year 1990 and Fiscal Year 1991 will investigate how the additional stored water would be allocated between water supply and fish flows, identify the impacts on anadromous fish reared upstream of the dam, and allocate some of the maintenance costs to the local sponsor. The City of Tacoma indicated by letter dated 9 October 1987 a willingness to cost share the feasibility study, and the State of Washington continues to express a great interest in this study. Funds requested for Fiscal Year 1991 will be used to complete detailed studies which will be cost shared on a 50-50 percent basis by Federal and non-Federal interests. Up to one-half of the non-Federal share may be in-kind services. A summary of study cost sharing is as follows:

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

2f. Project Review Studies: Howard Hanson Dam, Additional Storage (Cont'd)

Total Estimated Study Cost	$374,000
Reconnaissance Phase (Federal)	100,000
Feasibility Phase (Federal)	137,000
Feasibility Phase (non-Federal)	137,000

The Reconnaissance Report of the District Engineer was completed in December 1989. The final Feasibility Report of the Division Engineer is scheduled for completion in November 1991.

TOTAL SURVEYS	44,128,000	36,550,000	3,461,000	1,961,000	2,156,000

3. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES - NEW

3a. Navigation: None

3b. Flood Control: None

3c. Shoreline Protection: None

3d. Multiple Purpose Power: The amount of $450,000 is requested to initiate preconstruction engineering and design for one multiple purpose power activity.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
3d. Multiple Purpose Power: (Cont'd)					
Oregon					
Columbia River Treaty Fishing Access Sites, (Also WA)	1,150,000	0	0	450,000	700,000

In the 1850's the Indians of the Northwest entered into treaties with the United States in which the Indian tribes reserved the right to take fish at all usual and accustomed fishing places in common with other citizens. In the 1930's the United States constructed Bonneville Dam which caused the inundation of approximately 37 of the Indians' traditional fishing sites. In compensation, the United States has provided five sites totaling approximately 40 acres. Public use of shoreline land, particularly for the booming sport of wind surfing, has emphasized conflicts between the Indians and non-Indian river users and the need to provide access to the river for Indian fishermen.

Public Law 100-581, Title IV - Columbia River Treaty Fishing Access Sites, provides authority to implement a wide range of land management, transfer, acquisition, and development actions to provide fishing access for Indian tribes who exercise treaty fishing rights on the Columbia River. The law designates certain Federal sites on Bonneville, The Dalles, and John Day Projects for fishing access and authorizes the acquisition of additional sites on Bonneville Pool from willing sellers. The law also specifies the construction of fishing access facilities at these and the five existing sites. The improvements will consist of access roads, boat ramps, docks, sanitation, fish cleaning facilities, etc.

Fiscal Year 1991 funds will be used to initiate preconstruction engineering and design which is scheduled to be completed in September 1992. Facility needs and development suitability for designated sites will be evaluated, and general designs and costs estimates will be prepared. Proposed improvements will be coordinated with the Indian tribes and public.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES - NEW	1,150,000	0	0	450,000	700,000

4. PRECONSTRUCTION ENGINEERING AND DESIGN (PED) ACTIVITIES - CONTINUING

4a. Navigation: The amount of $233,000 is requested to complete preconstruction engineering and design for one navigation activity.

Alaska					
Kodiak Harbor	1,287,000	635,000	419,000	233,000	0

The City of Kodiak is situated on the northeast shore of Kodiak Island in Southcentral Alaska. It is an active and growing island port, with a population 6,800 whose economy is heavily dependent on commercial fishing. The port is a base for a commercial fishing fleet and serves as a transshipment center for goods bound to and from communities scattered on Kodiak Island and the eastern Alaska Peninsula. The growth in the fishing fleet has far outstripped the capacity of the existing small boat harbor. As a result, numerous vessels denied the protection of the basin moor at various docks, create a serious fire hazard, and interfere with efficient operation of the docks and other boats. The lack of adequate protected moorage forces a large number of boats to travel great distances to find off-season storage berthing, denies transient vessels safe refuge from storms, and inhibits fleet growth needed to fully utilize the fishery resources available. Feasibility studies of Dog Bay (St. Herman) and Trident Basin sites recommend the Dog Bay site. State and local interests constructed temporary harbor facilities in Dog Bay in 1982, but high winds and ocean swells have caused significant damage to the temporary mooring facilities and vessels.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4a. Navigation: Alaska, Kodiak Harbor (Cont'd)

The authorized project, estimated to cost $18,806,000, consists of a 1,900-foot-long rubblemound breakwater connecting three islands, and a 930-foot-long, 150-foot-wide, 20-foot-deep entrance channel to serve a minimum of 45 acres of moorage area in Dog Bay for 474 boats. The average annual benefits amount to $3,127,000 and the benefit-cost ratio is 1.2 at 8-7/8% interest.

The Kodiak Harbor project is authorized for construction by the Water Resources Development Act of 1986 (P.L. 99-662, Section 202). The following cost-sharing requirements apply: non-Federal interests must pay 10 percent of the project cost during construction and provide all land, easements, rights-of-way, dredge disposal areas, and relocation. The non-Federal interests must also reimburse the Government an additional 10 percent of the costs within a period of 30 years following project completion (offset by a credit allowed for lands, easements, rights-of-way, and disposal areas). These non-Federal costs are estimated to be $1,881,000 initially and $1,730,000 over 30 years.

Fiscal Year 1990 funds are being used to complete the general design memorandum, which will include detailed geotechnical investigations of the breakwater site, environmental analysis of Dog Bay and Trident Basin, economic evaluations to update the project benefits, and engineering designs for the harbor. A supplemental environmental impact statement will also be completed.

Fiscal Year 1991 funds will be used to complete plans and specifications for the first element of construction.

Preconstruction engineering and design is scheduled for completion in March 1991.

SUB-TOTAL - CONTINUING PED NAVIGATION	1,287,000	635,000	419,000	233,000	0

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4b. Flood Control: The amount of $1,764,000 is requested to complete three preconstruction engineering and design flood control activities.

Idaho

Little Wood River, Vicinity of Gooding and Shoshone	500,000	0	200,000	300,000	0

The Little Wood River project, authorized by the Water Resources Development Act of 1986, is located in the vicinity of the cities of Gooding and Shoshone in Lincoln and Gooding Counties, Idaho. The flood control project consists of a diversion channel and facilities at two separate locations to divert Little Wood River flood flows via the Dietrich and Milner-Gooding Canals into ponding areas in adjacent lava fields. Estimated project cost is $5,200,000 at October 1989 price levels. Average annual benefits and costs are $1,034,000 and $507,300, respectively. The benefit-to-cost ratio is 2.0.

Local cost sharing requirements are as follows: non-Federal interests must pay a minimum of 25 percent but not more than 50 percent of the total project cost; pay 5 percent of the total project cost at the time of construction; provide all lands, easements, rights-of-way, required relocations, and disposal areas; and pay 25 percent of the preconstruction engineering and design costs.

Project sponsors include the cities of Gooding and Shoshone, and Lincoln and Gooding Counties. Sponsors indicated support for the project in a meeting on 2 June 1988 and provided a letter of assurance, dated July 5, 1988, agreeing to cost share in the project.

Fiscal Year 1990 funds are being used to initiate Preconstruction Engineering and Design. However, because of the long period since the feasibility report, a restudy to review recently completed hydrologic studies in the basin, and recently completed flood control improvements on the Milner-Gooding canal will be prepared.

Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4b. Flood Control: Idaho, Little Wood River, Vicinity of Good and Shoshone (Cont'd)

Fiscal Year 1991 funds will be used to complete and preconstruction engineering and design studies.

Preconstruction engineering and design is scheduled for completion in December 1992.

Washington

Centralia	1,785,000	821,000	500,000	464,000	0

The Chehalis River drains an area of 2,114 square miles southwest Washington and empties into Grays Harbor. Skookumchuck Dam is an existing private project completed by Pacific Power and Light in 1970 at river mile 21.9 on the Skookumchuck River, a tributary of the Chehalis River, provides water supply for the 1.4 megawatt Centralia steam-electric generating plant and for supplementary fishery flows. The Skookumchuck and Chehalis River valley flood plains include 22,100 acres, of which about 2,400 acres are urban (Centralia) and the remaining 19,700 acres are rural. These rural areas include the incorporated towns of Bucoda and Oakville, the unincorporated communities of Galvin, Grand Mound, Rochester, and Porter and the Chehalis Indian Reservation. The flood of record on the Skookumchuck River occurred in 1972 and has an estimated recurrence interval of 35 years. A recurrence of that flood under October 1989 prices and conditions would result in estimated damages of $21,102,000. Average annual flood damages are estimated at $3,818,000.

The authorized project consists of modifications to the existing private dam on the Skookumchuck River to enable it to perform flood control operations and is estimated to cost $26,500,000 (October 1989 prices). The project would reduce flooding on 4,600 acres in the Skookumchuck River valley and on 17,500 acres in the

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4b. Flood Control: Washington, Centralia (Cont'd)

Chehalis River valley including areas in the City of Centralia, the towns of Bucoda and Oakville, Thurston County and Lewis County. Average annual flood damages would be reduced by $3,024,000 in October 1989 prices. The benefit-cost ratio is 1.2 to 1 at 8-7/8% interest.

The Centralia Flood Damage Reduction Project is authorized for construction by the Water Resources Development Act of 1986 (PL 99-662, Section 401), with the following cost sharing requirements: Local interests are required to provide lands, easements, rights-of-way, modify or relocate buildings, utilities, roads, and other facilities, except railroad bridges, where necessary in the construction of the project, and pay costs allocated to flood control, so that total contribution of the local interests is equal to 25 percent of the cost allocated to flood control, presently estimated at $6,600,000 (October 1989 prices), and bear all costs of operation, maintenance, and replacement of flood control facilities presently estimated at $124,000 annually. In a letter, dated 15 March 1989, the City of Centralia agreed to be the non-Federal sponsor and understand the cost sharing requirements for the project. They are developing a financing plan and a statement of financial capability.

Fiscal Year 1990 funds are being used to continue work on the General Design Memorandum, primarily geotechnical and environmental investigations. Fiscal Year 1991 funds would be used to complete preparation of a General Design Memorandum and Environmental Impact Statement Supplement in September 1991.

Chehalis River at South Aberdeen & Cosmopolis	1,828,000	828,000	0	1,000,000	0

Chehalis River drains an area of about 2,114 square miles in southwest Washington and empties into Grays Harbor. The South Aberdeen and Cosmopolis flood plain encompasses about 1,394 acres of mostly urban development on the left bank of the Chehalis River. A recurrence of the December 1933 event (a 150-year tidal flood) under today's conditions and prices would result in estimated damages of $10.4 million.

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$

4b. Flood Control: Washington, Chehalis River at South Aberdeen & Cosmopolis (Cont'd)

authorized project which includes construction of a levee system to provide flood protection to South Aberdeen and Cosmopolis, and gravity outlets with tide gates to accommodate interior runoff, is estimated to cost $10.6 million at October 1989 prices. The average annual benefits for flood damage reduction amount to approximately $1,672,000. The benefit-cost ratio is 1.6 to 1.

Chehalis River at South Aberdeen and Cosmopolis Flood Damage Reduction Project was authorized for construction by the Water Resources Development Act of 1986 (PL 99-662, Section 401) with the following cost sharing requirements: local interests are required to provide lands, easements, rights-of-way, modify or relocate buildings, utilities, roads, and other facilities, except railroad bridges, where necessary for construction of the project (presently estimated at $1 million); pay the remaining portion of the 25% of costs allocated to flood control which amounts to 15.6 percent, (presently estimated at $1,650,000); and bear all costs of operation, maintenance and replacement of flood control facilities (presently estimated at $35,000 annually). Coordination is ongoing with the local project sponsor, the city of Aberdeen, who is aware of the above cost sharing requirements. The General Design Memorandum will be completed in May 1990.

Fiscal Year 1991 funds will be used to initiate plans and specifications to ready the project for construction. Preconstruction engineering and design is scheduled for completion in September 1991.

SUB-TOTAL - CONTINUING PED FLOOD CONTROL	4,113,000	1,649,000	700,000	1,764,000	0

4c. Shoreline Protection: None

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Study	Total Estimated Federal Cost	Allocation Prior to FY 1990	Allocation FY 1990	Tentative Allocation FY 1991	Additional to Complete After FY 1991
	$	$	$	$	$
4d. Multiple Purpose Power: None					
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN	6,550,000	2,284,000	1,119,000	2,447,000	700,000
GRAND TOTAL - SURVEYS AND PRECONSTRUCTION ENGINEERING AND DESIGN	50,678,000	38,834,000	4,580,000	4,408,000	2,856,000

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APPROPRIATION TITLE: Construction, General - Navigation - Locks and Dams

PROJECT: Bonneville Navigation Lock, Oregon and Washington (Continuing)

LOCATION: At Bonneville Lock and Dam, OR and WA, project on the Columbia River at river mile 145.5 and 42 miles east of Portland, Oregon

DESCRIPTION: The project will provide a new lock south of the existing lock on the Oregon shore. The new lock will have horizontal dimensions equal to the seven existing upstream locks. Channel modifications will improve conditions at the upstream approach. Relocation of a railroad mainline, freeway off ramp, and some project facilities will provide room for the new lock.

AUTHORIZATION: Supplemental Appropriations Act, 1985
Water Resources Development Act of 1986

REMAINING BENEFIT - REMAINING COST RATIO: 1.4 to 1 at 8-1/8 percent.

TOTAL BENEFIT - COST RATIO: 0.70 to 1 at 8-1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.15 to 1 at 8-1/8 percent (FY 1985).

BASIS OF BENEFIT - COST RATIO: Benefits are from the Limited Reevaluation approved in June 1989 at October 1988 price levels.

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	$328,000,000				
Estimated Federal Cost		$164,025,000	Entire Project	30	Sep 93
General Appropriations	$164,000,000				
US Coast Guard	$25,000				
Estimated Non-Federal Cost		$164,000,000			
Inland Waterways Trust Fund	$164,000,000				
Total Estimated Project Cost		$328,025,000			

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SUMMARIZED FINANCIAL DATA (Cont'd)

	General Appropriations	Inland Waterways Trust Fund	Accumulated Percentage of Estimated Federal Cost
Allocations to 30 September 1989	$58,702,000 1/	$58,702,000	
Conference Allowance for FY 1990	17,000,000	17,000,000	
Allocation for FY 1990	17,248,000 2/	17,248,000 2/	
Allocations through FY 1990	75,950,000	75,950,000	46
Allocation Requested for FY 1991	34,500,000	34,500,000	67
Scheduled Balance to Complete after FY 1991	53,550,000	53,550,000	
Unscheduled Balance to Complete after FY 1991	0	0	

1/ Includes $24,000 General Investigations funds.
2/ Reflects a reduction of $3,280,000 assigned as savings and slippage, $350,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $4,126,000 reprogrammed to the project.

PHYSICAL DATA

Lock Dimensions: 86 ft wide; 675 feet long; 19 foot sill depth; Lift Range: 30 to 75.5 feet

Relocations:	
Interstate 84 Exit #40	$ 702,000
Union Pacific Railroad (3600 feet)	10,227,000
Utilities	121,000

Lands and Damages: Acres - 102; Government owned (U.S. Forest Service) - 34 acres, State of Oregon Department of Transportation - 44 acres, Union Pacific Railroad - 24 acres; Lands acquired will be used for lock, railroad relocation, drainage systems, river channel improvements.

JUSTIFICATION: Navigation problems at Bonneville stem from two conditions: hazardous lock entrance conditions and the small size of the lock (500 feet long and 76 feet wide) in comparison with standard upriver locks (675 feet long and 86 feet wide). Cross currents in the upstream lock approach create a hazard to tows approaching the lock. The small lock chamber size is causing increasing delays and congestion, as demand for waterway transportation increases. Delays of as much as 8 hours have occurred with an optimum tow configuration of five barges, as compared to a transit time of less than an hour for upriver locks. This delay occurs because a maximum of only two barges can presently be locked through at one time at Bonneville. Total average annual benefits are estimated to be $26,010,100.

STATUS OF LAND ACQUISITION: All necessary lands, easements, and rights-of-way necessary for construction were obtained by June 1986. Final land exchanges with the railroad will be completed after all construction affecting the railroad lands is complete.

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FISCAL YEAR 1991: The requested amount of $69,000,000 ($34,500,000 from General Appropriations and $34,500,000 from Inland Waterways Trust Fund) will be applied as follows:

	Amount
Continue Lands and Damages	$ 15,000
Continue Relocations	353,000
Continue Lock Construction	48,118,000
Continue Roads and Bridges	1,316,000
Continue Channels and Canals	9,644,000
Continue Buildings, Grounds, and Utilities	2,778,000
Engineering and Design	2,876,000
Construction Management	3,900,000
Total	$69,000,000

NON-FEDERAL COSTS: In accordance with the cost sharing and financing concepts reflected in Water Resources Development Act of 1986, one-half of the total cost for construction of navigation lock and dam projects will be paid by amounts appropriated from the Inland Waterways Trust Fund.

STATUS OF LOCAL COOPERATION: Agreements with Union Pacific Railroad for relocation of the railroad, and with the Oregon Department of Transportation for relocation of a portion of the Interstate 84 Offramp Exit #40 were signed on 30 May 1986.

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $328,000,000 is an increase of $91,000,000 from the latest estimate ($237,000,000) presented to Congress (FY 1990). This change includes the following items:

	Amount
Price Escalation on Construction Features	$10,237,000
Post Contract Award and Other Estimating Adjustments	80,763,000
Total	$91,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: A final environmental impact statement (EIS) was filed with the U.S. Environmental Protection Agency on 20 March 1981. A final supplement to the EIS was filed on 1 March 1986. The Record of Decision was signed on 30 May 1986.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1982 and funds to initiate construction were appropriated in FY 1985.

APPROPRIATION TITLE: Construction, General - Navigation, Channels and Harbors

PROJECT: Grays Harbor, Washington - (Continuing)

LOCATION: Grays Harbor is a large tidal estuary in southwestern Washington. The entrance is 45 miles north of the mouth of the Columbia River and 110 miles south of the Strait of Juan de Fuca. The estuary lies entirely within Grays Harbor County, Washington.

DESCRIPTION: The improvement consists of modifying 24.3 miles of the existing Federal navigation project for Grays Harbor by widening and deepening the channel. Two turning basins would be enlarged and terminal berths would be deepened. The restrictive, existing swing-span railroad bridge would be modified into a twin-tower lift-span bridge. The project also includes crab and fish mitigation, highway bridge fendering modification, removal of two old highway bridge piers, utility relocations, and relocation/addition of U.S. Coast Guard navigation aids.

AUTHORIZATION: Water Resources Development Act of 1986.

REMAINING BENEFIT - REMAINING COST RATIO: 2.4 to 1 at 8-7/8%.

TOTAL BENEFIT - COST RATIO: 1.7 to 1 at 8-7/8%.

INITIAL BENEFIT - COST RATIO: 1.8 to 1 at 8-5/8%. (FY 1990)

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation approved in November 1989 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA

Estimated Total Appropriation Requirement	$46,300,000
Future Non-Federal Reimbursement	1,500,000
Estimated Federal Cost (Ultimate-Corps of Engrs)	44,800,000
U. S. Coast Guard	163,000

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SUMMARIZED FINANCIAL DATA (Continued)

			Accum.
Estimated Non-Federal Cost		25,237,000	Pct. of Est.
Cash Contributions	9,310,000		Fed. Cost
Other Costs	14,427,000		
Reimbursements	1,500,000		
Total Estimated Project Cost		$70,200,000	
Allocations to 30 September 1989		3,530,000	
Conference Allowance for FY 1990		13,000,000	
Allocation for FY 1990		12,818,000 1/	
Allocations thru FY 1990		16,348,000	35
Allocation Requested for FY 1991		10,500,000	58
Scheduled Balance to Complete after FY 1991		19,452,000	

STATUS	PERCENT	COMPLETION
1 Jan 1990	COMPLETE	SCHEDULE
Entire Project	0	Sep 92

PHYSICAL DATA
PROPOSED CHANNEL DESCRIPTION

REACH TITLE	PROPOSED	EXISTING
Outer Bar	1000' Wide x 46' Deep	600' Wide x 30' Deep
Entrance	1000'-600' Wide x 46'-38' Deep	350' Wide x 30' Deep
Outer Harbor	350' Wide x 36' Deep	350' Wide x 30' Deep
Inner Harbor	350' Wide x 36' Deep	350' Wide x 30' Deep
River	250'-300' Wide x 36' Deep	200' Wide x 30' Deep

1/ Reflects $182,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

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JUSTIFICATION: Grays Harbor is the largest log exporting port in the United States and the largest North American exporter of logs to China. There currently exists economic need to widen and deepen the present navigation channel at Grays Harbor. The present 30-foot deep channel is too shallow to efficiently accommodate the larger vessels of the existing and future log vessel fleets. Current world class log vessels have design drafts exceeding 37 feet and beams in excess of 100 feet. Current depths at Grays Harbor limit these larger vessels to high-cost partial loads or requires them to bypass Grays Harbor entirely. The proportion of vessels departing Grays Harbor only partially loaded is steadily increasing. In addition, the 125-foot horizontal clearance of the UPRR bridge allows only vessels of 85 feet beam or less to call above Cow Point. Increasing record volumes of logs were exported from Grays Harbor in recent years, with 4.9 million tons exported in 1988. Logs are exported to China, Japan, Korea, and Turkey. Improvements to the waterway and modification of the railroad bridge and necessary terminal improvements will significantly improve navigation efficiency, reduce the cost to transport logs to foreign markets, and contribute favorably to the balance of trade. Average annual navigation benefits attributable to the improvements are currently estimated at $14,052,000 @ 8-7/8 percent.

FISCAL YEAR 1991: The requested amount of $10,500,000 will be applied as follows:

Initiate relocation of railroad bridge	$ 8,893,000
Continue fish and crab mitigation	172,000
Continue downstream dredging	323,000
Engineering and Design	674,000
Supervision and Administration	438,000
Total	$10,500,000

NON-FEDERAL COST: In accordance with the cost sharing and financing concepts reflected in the Water Resources Development Act of 1986, the non-Federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation:	Annual Payments During Construction and Reimbursements	Operation, Maintenance and Replacement Costs
Provide easements, rights of way, relocations, and dredged material disposal areas.	$5,229,000	0
Pay 25 percent of the costs allocated to the remaining general navigation during construction.	$15,476,000	0

19 JAN 1989

Requirements of Local Cooperation: (Continued)

Reimburse an additional amount, presently estimated at 2.4% of the costs allocated to general navigation, within a period of 30 years following completion of construction.	$ 1,500,000	0
Special land creation cost sharing for filling Slip One	$ 22,000	0
Dredge berth areas.	$ 205,000	0
Highway bridge modification costs provided per provisions of the Truman-Hobbs Act by highway bridge owner. (To be paid by local sponsor.)	$ 568,000	0
Subtotal, Port of Grays Harbor	$23,000,000	None
Railroad bridge relocation costs provided per provisions of the Truman-Hobbs Act by railroad bridge owner.	$ 2,237,000	0
TOTAL NON-FEDERAL COSTS	$25,237,000	None

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STATUS OF LOCAL COOPERATION: The non-Federal sponsor is the Port of Grays Harbor who is scheduled to sign the LCA in February 1990.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal (Corps of Engineers) cost estimate of $46,300,000 is the first presented to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final EIS Supplement for the proposed improvements was filed with EPA on 12 May 1989. An environmental assessment is being prepared for potentially contaminated sediments not addressed in the EIS Supplement; following public review, a finding of no significant impact (FONSI) will be prepared. The project Record of Decision is scheduled for signing by the Division Engineer in February 1990.

OTHER INFORMATION:
Funds to initiate preconstruction engineering and design were appropriated in FY 1984 and funds to initiate construction were appropriated in FY 1990. Estimated Fish and Wildlife mitigation construction costs total $1,192,000.

29 JAN 1990

APPROPRIATION TITLE: Construction, General - Reservoirs (Flood Control)

PROJECT: Elk Creek Lake, Oregon (Continuing)

LOCATION: In Jackson County, on Elk Creek, a tributary of Rogue River, at river mile 1.7 about 26.5 miles north of Medford, Oregon.

DESCRIPTION: The project consists of a 249-foot high roller compacted concrete gravity dam, 2580 feet long at the crest, with a gate controlled concrete chute spillway, regulating outlet conduits, a diversion for a power penstock, and multiple use intake tower attached to the upstream face of the dam.

AUTHORIZATION: 1962 Flood Control Act.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is 0.63 to 1.0 at the authorized rate of 3 1/4%.

TOTAL BENEFIT - COST RATIO: The total benefit-cost ratio is 0.30 to 1.0 at 3 1/4%.

INITIAL BENEFIT - COST RATIO: The benefit-cost ratio for the fiscal year for which Congress appropriated initial construction funds (FY 1971) was 1.01 to 1.0 at a 3 1/4% rate and was based on project's fair share of system benefits.

BASIS OF BENEFIT - COST RATIO: Benefits are from the latest available evaluation reported in June 1983 at 1983 price levels.

1987

SUMMARIZED FINANCIAL DATA			STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement		$164,400,000 1/			
Scheduled Construction	$106,341,000		Entire Project	72	Indefinite 1/
Unscheduled Construction	58,059,000				
Future Non-Federal reimbursement		32,987,000			
Scheduled Construction	0				
Unscheduled Construction	32,987,000				
Estimated Federal Cost (Ultimate)		131,413,000			
Scheduled Construction	106,341,000				
Unscheduled Construction	25,072,000				

1/ The project cost estimate is tentative and the construction schedule is indefinite pending direction from the U.S. District Court and completion of NEPA requirements.

SUMMARIZED FINANCIAL DATA (Cont'd)			Accum. % of Est. Fed. Cost
Estimated Non-Federal Cost		$36,587,000	
Scheduled Construction	0		
Unscheduled Construction	$36,587,000		
Cash Contribution	$3,600,000		
Other Costs	0		
Reimbursements	$32,987,000		
Irrigation $9,973,000			
Water Supply 23,014,000			
Total Estimated Scheduled Construction Cost		$106,341,000	
Total Estimated Unscheduled Construction Cost		61,659,000	
Total Estimated Project Cost		168,000,000 1/	
Allocations to 30 September 1989		99,541,000	
Conference Allowance for FY 1990		650,000	
Allocation for FY 1990		800,000 2/	
Allocations through FY 1990		100,341,000	61%
Appropriation Requested for FY 1991		3,000,000	63%
Scheduled Balance to Complete after FY 1991		3,000,000	
Unscheduled Balance to Complete after FY 1991		58,059,000	

PHYSICAL DATA

Dam: Type - Roller Compacted Concrete, Height - 249 feet; length - 2,580 feet, Concrete Volume - 1,100,000 cu. yds. Spillway: Type - Concrete Gravity, Gate Ogee Section: Design Discharge 68,400 cfs, Gates - 3 (33 feet x 34 feet) tainter Lands and Damages: Acres - 3,570; Land Use: Irrigated - 130 acres; Pasture - 182 acres; Wooded - 3,151 acres (of which 841 acres are Government-Owned); Lesser Interests - 67 acres; Building Sites - 40 acres Relocations: county Road - 7.9 miles Power & Telephone Lines - 15 Miles, Cemetery Reservoir Capacity: Total storage at elev 1,726 - 101,000 ac feet; Usable Storage - 95,000 ac feet; Flood Control Storage (elev 1726-1665)-60,000 ac ft; Conservation Storage (elev 1665-1581) - 35,000 ac ft; Inactive Storage (elev 1581-1500) - 6,000 ac ft.

1/ The project cost estimate is tentative and the construction schedule is indefinite pending direction from the U.S. District Court and completion of NEPA requirements.

2/ Reflects reduction of $63,000 assigned to Savings and Slippage and $7,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $220,000 reprogrammed to the project.

1238

JUSTIFICATION: Elk Creek Lake will be operated with Lost Creek and Applegate Lakes as the three-dam Rogue River Basin system to provide flood control, water supply, fish and wildlife enhancement, water quality control, recreation, and irrigation. The project would control run-off from about 132-square miles upstream from Elk Creek site. A total of 95,000 acre-feet of usable storage at Elk Creek would be utilized for flood control and water conservation. Lost Creek and Elk Creek as a unit would provide water for irrigation of about 25,000 acres of land, of which about 19,000 acres would be new lands; provide 20,000 acre feet of stored water for future water supply; improve stream conditions to enhance the fisheries of Rogue River and tributaries by increased flows and controlled discharges of cooler water, and would reduce the peak stage of floods. During the flood of 1964, the most severe flood since 1861, damages to the area downstream from Elk Creek and Lost Creek Lakes amounted to $13,161,000 of which about $2,350,000 would have been prevented by Elk Creek Lake. The peak stage of a flood such as that of 1964 would be reduced about 5.6 feet at Grants Pass by Lost Creek, and 7.4 feet by Lost Creek and Elk Creek Lakes combined. Annual benefits creditable to Elk Creek Lake are estimated to be $2,156,000 based on 1 October 1983 prices, considered as last added increment to the three-dam system and include the following:

	Last Added Increment 3 1/4%	System Analysis 3 1/4%
Annual Benefits		
Flood Control	1,883,000	4,192,000
Irrigation 1/	0	0
Water Supply 1/	0	0
Fish and Wildlife Enhancement	130,000	130,000
Recreation 1/	0	0
Employment	143,000	143,000
Total	2,156,000	4,465,000

FISCAL YEAR 1991: The requested amount of $3,000,000 will be applied as follows:

Continue Lands & Damages	51,000
Continue Relocations	65,000
Continue Project Maintenance	245,000
Continue Cultural Resource Preservation	116,000
Planning, Engineering & Design	2,319,000
Construction Management	204,000
Total	$3,000,000

1/ Lack of cost-sharing contracts for storage and associated non-Corps development indicate that benefits for these purposes will not be realized in the foreseeable future.

NON-FEDERAL COSTS: The non-federal sponsor must comply with the requirements listed below:

Requirements of Local Cooperation	Payment During Construction and Reimbursements	Annual Operation, Maintenance, & Replacement Costs
Pay all costs allocated to municipal and industrial water supply and bear all costs of operation, maintenance, and replacement of municipal and industrial water supply facilities.	$23,014,000	$ 0
Pay one-half of the separable costs allocated to recreation (except recreational navigation) and bear all costs of operation, maintenance, and replacement of recreation facilities.	3,600,000	374,000
Pay 100 percent of the first costs allocated to agricultural water supply, and bear all costs of operation, maintenance, and replacement of agricultural water supply facilities.	9,973,000	0
Total Non-Federal Costs	$36,587,000	$ 374,000

STATUS OF LOCAL COOPERATION: Responsibility for repayment of irrigation costs rests with the Department of Interior pursuant to Federal laws. Responsible officials of four irrigation districts (Sams Valley, Eagle Point, Applegate Valley, and Rogue River Valley) have furnished preliminary assurances that it is the intention of each individual district to enter into a contract with the Secretary of the Interior to provide reimbursement of irrigation cost within each district's ability to repay such costs pursuant to reclamation law. Pursuant to Public Law 91-439, 7 October 1970, the project will not be operated for irrigation purposes until such time as the Secretary of the Interior makes the necessary arrangements with non-federal interest to recover the costs, in accordance with the Federal Reclamation Law, which are allocated to the irrigation purpose. Assurances for future purchase of municipal and industrial water supply have been obtained from six communities in the valley: Medford, Grants Pass, Shady Cove, Sams Valley, Eagle Point, and Gold Hill. Phoenix, Oregon, a suburb of Medford, is currently purchasing municipal and industrial water supply storage at Lost Creek Lake.

Recreation facilities will not be scheduled until development of cost sharing agreements with Local Interests for construction and non-federal operation and maintenance, consistent with projects for which recreation facilities are being constructed under provisions of the Federal Water Project Recreation Act of 1965 (PL 89-72), as amended.

1240

COMPARISON OF FEDERAL COST ESTIMATES: The current federal cost estimate of $164,400,000 is an increase of $32,900,000 from the last estimate ($131,500,000) submitted to Congress (FY 1990). This change includes the following items:

Item	Amount
Post Contract Award and other Estimating Adjustments (due primarily to court injunction)	$31,065,000
Sundry	1,835,000
Total	$32,900,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The Final Statement was filed with CEQ on 17 September 1971. Supplement No. 1, addressing water quality and social/demographic information was filed with EPA on 24 December 1980. An environmental assessment addressing the design changes (Roller Compacted Concrete in lieu of embankment dam) was completed 11 October 1983. A record of Decision was filed with EPA in February 1982 and again on 14 January 1986 as a result of litigation which raised additional concerns regarding primarily fish and wildlife mitigation effort. A Supplemental Information Report, dated 23 September 1985, was provided to the public addressing design changes such as the roller compacted concrete in lieu of an embankment dam. The schedule for completion of additional NEPA requirements is indefinite pending direction from the U.S. District Court.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1965, and for construction in FY 1971. Construction was deferred in FY 1977 due to a lack of state support. Following significant review, evaluation, and a public hearing, the Water Policy Review Board reversed its position and in April 1981 voted to support Elk Creek. Funds were appropriated in FY 1982 and FY 1983 to update and continue project design, plans, and specifications. Funds were appropriated in FY 1985 to resume construction.

The Oregon Natural Resource Council (ONRC), a local environmental group, filed a suit against the U.S. Government in March of 1983 to halt construction of the Elk Creek Lake project based on alleged NEPA violations. U.S. District Court ruled on 16 January 1986, in favor of the U.S. Government. ONRC filed an appeal with the U.S. Ninth Circuit Court of Appeals who overturned the District Court ruling on 23 June 1987. The U.S. District Court in turn issued an injunction to limit the construction of the dam to elevation 1,563 feet on 31 August 1987. The U.S. Government filed for a rehearing of the U.S. Ninth Circuit Court of Appeals' ruling of 23 June 1987, and on 10 December 1987, the U.S. Ninth Circuit Court of Appeals denied the request. The U.S. Department of Justice filed a Writ of Certiorari with the Supreme Court on 14 April 1988. On 27 June 1988, the Supreme Court agreed to hear the appeal. Oral arguments were held on 9 January 1989. On 1 May 1989, the U.S. Supreme court unanimously reversed the Ninth Circuit Court and remanded the case back. Direction from the U.S. District Court is currently pending.

APPROPRIATION TITLE: Construction, General - Dam Safety Assurance

PROJECT: Mud Mountain Dam, Washington - (Continuing)

LOCATION: Mud Mountain Dam is located at river mile 29.6 on the White River, 5 miles upstream and southeast of Enumclaw, and 24 miles southeast of Tacoma in western Washington.

DESCRIPTION: Modifications will consist of raising the dam crest elevation; raising the spillway chute walls to contain the spillway discharge during the Spillway Design Flood event; constructing a new reservoir outlet tower which will be accessible at all pool levels, will serve both tunnels, will remain open during and after high water and debris flows, and will withstand the Maximum Credible Earthquake; and constructing a new bridge over the spillway for emergency equipment access to downstream outlets during spillway use.

AUTHORIZATION: Flood Control Act of 1936 authorized the Mud Mountain Dam and reservoir on the White River as the main unit of the Puyallup River flood control project.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable to dam safety assurance projects.

TOTAL BENEFIT - COST RATIO: Not applicable to dam safety assurance projects.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT - COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA			1 Jan 1990	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	$58,200,000				
Estimated Non-Federal Cost	0		Entire Project	23	Sep 94
		Accum.			
Total Estimated Project Cost	$58,200,000	Pct. of Est. Fed. Cost			
Allocations to 30 September 1989	6,234,000				
Conference Allowance for FY 1990	5,000,000				
Allocation for FY 1990	4,323,000 1/				
Allocations thru FY 1990	10,557,000	18			
Allocation Requested for FY 1991	8,700,000	33			
Scheduled Balance to Complete after FY 1991	38,943,000				

1/Reflects $482,000 reduction assigned as savings and slippage, $51,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $144,000 reprogrammed from the project.

PHYSICAL DATA:

Dam:	Type	- Rockfill with earth core	Spillway:	Type	- Uncontrolled
	Height	- 425 feet above bedrock		Design Capacity	- 139,000 cfs
	Crest	- 700 feet long		Overtopping Capacity	- 220,000 cfs
	Width	- 1,600 feet at base, 50 feet at crest			

JUSTIFICATION: Mud Mountain Dam became operational in 1948, and presently provides flood damage protection for about 850 acres of land on the White River and approximately 6,200 acres on the Puyallup River. The area is used for agriculture, residential, industrial, commercial, and transportation developments related to the intensely developing Port of Tacoma area. Major transportation facilities include the Burlington Northern and the Tacoma Beltline Railroads; Interstate Highway 5; and U.S. Highway 99 and 410. The area has a population of more than 190,000 people with 73,000 in the Mud Mountain Dam flood plain.

The existing spillway is inadequate for Spillway Design Flood (SDF) based on current criteria. With an SDF the dam would be overtopped and would probably fail. The resulting flood would inundate the White and Puyallup River Valleys and could cause flow into the adjacent Green River Valley below Auburn. Widespread flooding would result in catastrophic damages with a potential for high loss of human life. Damages without dam failure during the SDF conditions have been estimated to be about $2.2 billion at October 1989 prices and conditions. Damages associated with a dam failure during the SDF conditions have been estimated to be about $3.6 billion at October 1989 prices and conditions. Should the dam fail, costs to repair the dam structure are estimated to be $128 million, and yearly flood losses would occur until the dam is replaced.

There would be a high probability for loss of reservoir control by failure of the existing reservoir outlet towers during the Maximum Credible Earthquake or plugging of the towers with debris during floods. Loss of control would cause a rapid and uncontrolled rise in pool level resulting in unregulated flow over the spillway and loss of flood protection. Under these conditions, the integrity of the right reservoir rim may be jeopardized by seepage resulting from the prolonged high pool.

FISCAL YEAR 1991: The requested amount of $8,700,000 will be applied as follows:

Continue modification of dam	$6,910,000
Engineering and Design	950,000
Supervision and administration	840,000
Total	$8,700,000

NON-FEDERAL COSTS: None required.

STATUS OF LOCAL COOPERATION: Mud Mountain Dam is an operational Federal project with no local sponsorship. Local cooperation is not required for this dam safety project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $58,200,000 is an increase of $13,700,000 from the latest estimate ($44,500,000) presented to Congress (FY 1990). This change includes the following items.

Price Escalation on Construction Features	$+2,480,000
Design Changes	+11,220,000
Total	$+13,700,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental assessment was completed in June 1986.

OTHER INFORMATION: The General Design Memorandum (GDM) was funded under the Operations and Maintenance, General appropriation prior to FY86. Construction, General funds to complete the GDM and to initiate construction were appropriated in FY86. Planning and engineering effort for the dam core seepage problem was funded with Construction, General funds in FY86. The dam seepage project is being programmed under O&M, General, Major Rehabilitation.

1244

APPROPRIATION TITLE: Construction, General - Multiple-Purpose Power Projects

PROJECT: Bonneville Second Powerhouse, Oregon and Washington (Continuing)

LOCATION: On the Columbia River at river mile 146 and 42 miles east of Portland, Oregon.

DESCRIPTION: Construction of a Second Powerhouse, modification for peaking, and associated fish passage facilities.

AUTHORIZATION: 1933 Federal Emergency Administration of Public Works; 1935 River and Harbor Act; 1937 Bonneville Project Act; WRDA of 1974; and FY 1984 Second Supplemental Appropriation, PL 98-396, Title I, Chapter IV.

REMAINING BENEFIT - REMAINING COST RATIO: The remaining benefit-remaining cost ratio is not applicable because the project is nearing completion.

TOTAL BENEFIT - COST RATIO: 7.8 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 2.3 to 1 at 3-1/4 percent (FY 1974). The benefit-cost ratio was based on the project's fair share of system benefits in the Columbia River system; as the next added unit in this system the benefit-cost ratio was 2.3 to 1.

BASIS OF BENEFIT - COST RATIO: Benefits are from General Design Memorandum approved in May 1973 at July 1971 price levels.

SUMMARIZED FINANCIAL DATA		STATUS: (1 Jan 1990)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	$679,000,000	Entire Project	97	Sep 96
Future Non-Federal Reimbursement	659,918,000			
Estimated Federal Cost (Ultimate)	18,796,000			
Estimated Non-Federal Cost	660,204,000			
Other Costs	286,000			
Reimbursements	659,918,000			
Power	659,918,000			
Total Estimated Project Cost	$679,000,000			

1245

29 JAN 1990

JUSTIFICATION: The Bonneville Second Powerhouse project provides an essential part of the generation required by the federal system during peak demand and is used to replace existing high-cost thermal generation during non-peak periods. The project has 589 Mw of dependable capacity and produces on an average annual basis 1,471,621 Mwh of energy. Total average annual benefits are estimated to be:

Annual Benefits	Amount
Power	$240,265,000
Recreation	763,000
Total	$241,028,000

FISCAL YEAR 1991: The requested amount of $1,900,000 will be applied as follows:

	Amount
Continue Fish and Wildlife Facilities	$ 1,283,000
Continue construction of miscellaneous project features	117,000
Engineering and Design	300,000
Construction Management	200,000
Total	$ 1,900,000

NON-FEDERAL COSTS: Costs allocated to power, presently estimated at $659,918,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration, the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps' generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations. Fifty percent of the recreation costs ($286,000) are being provided by a non-federal interest under a cost sharing agreement.

STATUS OF LOCAL COOPERATION: None required for construction of the powerhouse facilities. Responsibility for repayment of power costs rests with the Department of Energy pursuant to federal laws. An agreement for non-federal participation requirements for Home Valley Park recreation facilities with Skamania County, Washington, was completed on 24 January 1986. Construction of Home Valley Park was completed in fiscal year 1989.

1246

27-138 O—90—40

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accumulated Percentage of Estimated Federal Cost
Allocations to 30 September 1989	$654,519,000	
Conference Allowance for FY 1990	4,800,000	
Allocation for FY 1990	3,909,000 2/	
Allocations through FY 1990	658,428,000	97
Allocation Requested for FY 1991	1,900,000	97
Scheduled Balance to Complete after FY 1991	18,672,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Construction of Bonneville Dam with an initial power installation of 10 units (518,400 kw capacity) was completed in 1953 at a cost of $83,239,395. The project was modified for peaking at a cost of $27,195,000 and was completed in 1978. The estimated cost shown is for the additional powerhouse project only.

2/ Reflects a reduction of $463,000 assigned as savings and slippage, $49,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $379,000 reprogrammed from the project.

1247

PHYSICAL DATA

Power Installation: 8 Units @ 66,500 kw; 2 fish turbine/generator units @ 13,100 kw; Total 558,200 kw; Head - 52 feet

Relocations: Wash State Hwy No. 14, 3-3/4 miles; $ 9,810,000

Burlington Northern Railroad, 3 miles; 21,676,000

Town of North Bonneville and associated utilities 26,735,000

Lands and Damages: Acres - 2,140; Project area includes the existing town site of North Bonneville as well as undeveloped and pasture lands in the surrounding area and the Steigerwald Lake area located in Clark County, about 21 miles downstream of Bonneville Dam.

29 JAN 1990

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $679,000,000 is an increase of $2,000,000 from the latest estimate ($677,000,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 1,733,000
Post Contract Award and Other Estimating Adjustments	267,000
Total	$ 2,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement (EIS) was filed with the Council on Environmental Quality (CEQ) on 14 April 1972. An EIS supplement for relocation of the City of North Bonneville was filed with CEQ on 19 March 1976.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1967 and funds to initiate construction were appropriated in FY 1974.

Funds in the amount of $8,500,000 were appropriated in FY 1984 for acquisition and initial development of the Steigerwald Lake Wetland Area, Clark County, Washington, for the fish and wildlife mitigation purposes associated with the project. Authorization also provides for transfer of the lands without monetary consideration to the Department of Interior, U.S. Fish and Wildlife Service for operation and maintenance. The current federal cost estimate includes $127,277,000 for fish and wildlife mitigation, and associated lands, engineering and design, and supervision and administration.

1248

20 JAN 1988

APPROPRIATION TITLE: Construction, General-Multiple Purpose Power Projects

PROJECT: Chief Joseph Additional Units, Washington (Continuing)

LOCATION: On the Columbia River, 545 miles upstream of the mouth, 51 miles downstream of Grand Coulee Dam, 1-1/2 miles upstream from the town of Bridgeport, Washington, between Douglas and Okanogan Counties.

DESCRIPTION: Chief Joseph Dam was raised and new spillway piers and gates were provided to support a 10-foot higher operating pool elevation. The powerhouse was extended and 11 additional turbines and generators of greater capacity than the original 16 units were installed together with their penstocks, transformers, and supporting equipment. The original 16 generating units and supporting equipment were uprated to match the new output of the existing turbines created by the new higher pool elevation. A new computerized control system will meet the need for smoothly controlling the additional peaking power. Other work items relocated project shops and visitor areas, provided wildlife studies and mitigation, relocated recreation facilities, and produced a comprehensive cultural resources program.

AUTHORIZATION: 1946 River and Harbor Act as modified by P.L. 94-587 and P.L. 95-26

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because the project is nearing completion.

TOTAL BENEFIT - COST RATIO: 27.1 to 1 at 3-1/4 percent.

INITIAL BENEFIT - COST RATIO: 6.1 to 1 at 3-1/4 percent (FY 1973).

BASIS OF BENEFIT-COST RATIO: Benefits are from the latest available evaluation calculated in November 1989 at October 1989 price levels.

SUMMARIZED FINANCIAL DATA:

		STATUS 1 Jan 1990	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	$395,000,000			
		Entire Project	96	Sep 1994
Future Non-Federal Reimbursement	385,330,000			
Estimated Federal Cost (Ultimate)	9,670,000			
Estimated Non-Federal Cost	$385,330,000			
Reimbursements	385,330,000			
Power	385,330,000			

SUMMARIZED FINANCIAL DATA: (continued)

Total Estimated Project Cost	$395,000,000	Accum.
Allocations to 30 September 1989	377,262,000	Pct. of Est.
Conference Allowance for FY 1990	7,000,000	Fed. Cost.
Allocation for FY 1990	8,301,000 1/	
Allocations through FY 1990	385,563,000	98
Allocation Requested for FY 1991	3,800,000	99
Scheduled Balance to Complete After FY 1991	5,637,000	

PHYSICAL DATA:

Existing Project -
- Concrete gravity dam 220 feet high
- Intake gate bays for 27 generators
- Powerhouse for 16 units

Reservoir Capacity -
- Gross capacity, 593,000 acre-feet
- Power pondage, 38,800 acre-feet

Structural Modification -
- Modify spillway and dam for a 10-foot pool raise
- Enlarge powerhouse to 27 units

Relocations -
- 1.4 miles of country road
- Bridgeport State Park
- Elmer City Recreation Area

Power Installation	Powerplant Nameplate Capacity Rating	Powerplant Maximum Capacity Rating
Origional Units 1-16	1,024,000 KW	N/A
Additional 11 units	1,045,000 KW	1,201,750 KW
Uprate Units 1-16	204,160 KW	1,412,384 KW
Total Units 1-27	2,273,160 KW	2,614,134 KW (Maximum powerplant output is limited to 2,525,000 kw by hydraulic factors.)

1/Reflects reduction of $675,000 assigned as savings and slippage, $72,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $2,048,000 reprogrammed to the project.

1250

JUSTIFICATION: Power generation capacity is being increased at Chief Joseph Dam to help meet the demand for low cost hydroelectric power in the Pacific Northwest. Installation of the 11 additional units and uprating of the original 16 units provides an essential part of the power generation required by the Federal system during peak demand periods and will be used to replace existing high-cost thermal generation during nonpeak periods. Average annual benefits are as follows:

Average Annual Benefits	Amount
Power	$434,046,000
Recreation	238,000
Employment	712,000
Total	$434,996,000

FISCAL YEAR 1991: The requested amount of $3,800,000 will be applied as follows:

Continue Construction of Dam	$ 325,000	
Continue Construction of Powerplant	1,988,000	2/
Engineering and Design	452,000	2/
Supervision and Administration	1,035,000	2/
Total	$3,800,000	

NON-FEDERAL COST: Costs allocated to power, presently estimated at $385,330,000, are reimbursable. This project is a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Federal marketing agency, establishes system rate levels adequate to recover all capital investment costs for Federal generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment status and periodically recommends rate adjustments as required for meeting repayment obligations.

STATUS OF LOCAL COOPERATION: Chief Joseph Dam is an operational Federal project with no local sponsorship. Local cooperation is not required for this project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $395,000,000 is unchanged from the latest estimate submitted to Congress (FY 1990).

2/ Includes government cost to support Hitachi turbine correction program (see under Other Information).

1251

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental impact statement was filed with the Council of Environmental Quality on 2 February 1972. A supplemental environmental statement, including operating the existing project, was filed on 17 July 1975.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1967 and funds to initiate construction were appropriated in FY 1973. Fish and wildlife mitigation costs are estimated at $6,400,000.

Units 17-27 failed to meet efficiency criteria specified in the Units 17-27 turbine contract by operating at an efficiency of 87.9% or 4.6% below the contractual efficiency of 92.5%. On 01 July 1988, Hitachi American, Ltd. (HAL), the original contractor, agreed to a no-cost modification to the original contract to correct the turbine efficiency problem. HAL provided a $32 million letter of credit to assure its performance. As part of the modification, the government will be required to disassemble and reassemble the generators in order to provide HAL with access to the turbines. The no-cost modification when successfully completed will eliminate potential litigation and result in a major cost savings to the government.

1252

APPROPRIATION TITLE: Construction, General - Multiple Purpose Power Projects

PROJECT: Columbia River Juvenile Fish Mitigation, Washington, Oregon & Idaho (Continuing)

LOCATION: Lock and Dam projects on the Lower Columbia and Snake Rivers.

DESCRIPTION: The Mitigation consists of (1) continued construction of juvenile fish passage measures at Lower Granite, Little Goose, and Lower Monumental, on the Snake River, and McNary on the Columbia River and (2) a detailed mitigation analysis, to be prepared in cooperation with regional interests, for juvenile fish losses at Corps dams on the mainstem Columbia and Snake Rivers. Completion of the additional and improved bypass and transportation facilities will increase the survival of migrating juvenile fish passing mainstem dams. The detailed Mitigation Analysis will determine the overall extent of the justified fish mitigation for the mainstem Lower Columbia and Snake River dams.

AUTHORIZATION: 1945 River and Harbor Act

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.1/

TOTAL BENEFIT-COST RATIO: Not applicable.1/

INITIAL BENEFIT-COST RATIO: Not applicable.1/

BASIS OF BENEFIT COST RATIO: Not applicable.1

1/ Mitigation is incrementally justified through consideration of costs and non-monetary and monetary benefits; accordingly, a benefit-cost ratio is not computed.

SUMMARIZED FINANCIAL DATA		STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	139,000,000	Lower Granite	20	SEP 95
		Little Goose	34	SEP 95
		Lower Monumental	0	SEP 95
Future Non-Federal Reimbursement	124,575,000 2/	McNary	0	SEP 95
		Mitigation Analysis	0	SEP 92

2/ Excludes cost of the mitigation analysis which will be allocated at the conclusion of the analysis.

Division: North Pacific District: Walla Walla/Portland Columbia River Juvenile Fish Mitigation
Washington, Oregon, & Idaho

29 JAN 1990

SUMMARIZED FINANCIAL DATA (Continued)

Estimated Federal Cost (Ultimate)			14,425,000	
Estimated Non-Federal Cost			124,575,000	
Cash Contributions	0			
Other Costs	0			
Reimbursements		124,575,000		
Total Estimated Project Cost			139,000,000	

			ACCUM. PCT. OF EST. FED COST
Allocations to 30 Sep 1989	16,401,000		
Conference Allowance for FY 1990	8,800,000		
Allocation for FY 1990	8,678,000	1/	
Allocations through FY 1990	25,079,000		13
Allocation Requested for FY 1991	15,800,000		20
Scheduled Balance to Complete after FY 1991	98,121,000		
Unscheduled Balance to Complete after FY 1991	0		

1/ Reflects $122,000 sequestered in accordance with the Gramm-Rudman-Hollings Act.

1254

PHYSICAL DATA

Mitigation Analysis

Little Goose Lock & Dam
- Extended Screens
- Holding and Loading Facility Improvements

Lower Monumental Lock & Dam
- Screened Bypass Facility
- Holding and Loading Facility

Lower Granite Lock & Dam
- Extended Screens
- Fish Loading Facility Improvements
- Barge Moorage Facility Expansion
- Fish Transportation Barges

McNary Lock & Dam
- Holding and Loading Facility Improvements
- Extended Screens
- Screen Maintenance Facility

JUSTIFICATION: Columbia River Juvenile Fish Mitigation provides mitigation for the impact of Corps dams on migrating juvenile salmon and steelhead. Completed and scheduled mitigation measures are based on analyses completed to date. However, the extent of justified mitigation for Corps dams on the mainstem Columbia and Snake Rivers has never been evaluated. Accordingly, a two year detailed Mitigation Analysis is scheduled to begin in FY 1991. This study will consider wide ranging non-Corps input and will establish the ultimate scope of Juvenile Fish Mitigation.

1255

FISCAL YEAR 1991: The requested amount of $15,800,000 will be applied as follows:

	Amount
Lower Granite Complete Fish Loading Facility Improvements Complete Barge Moorage Facility Expansion Design Extended Screens	$ 800,000
Little Goose Design Extended Screens	400,000
Lower Monumental Initiate Screened Bypass Facility Initiate Holding & Loading Facility	8,700,000
McNary Complete Prototype Extended Screens Initiate Holding & Loading Improvements Design Extended Screens	4,900,000
Initiate Mitigation Analysis	1,000,000
Total	$15,800,000

1256

NON-FEDERAL COSTS: Costs allocable to power presently estimated at $124,575,000 1/ are reimbursable. The dams being modified and analyzed are a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Federal marketing agency, establishes system rate levels adequate to recover all capital investment costs for generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits an annual financial statement to Congress, as required by law, on repayment and periodically recommends rate adjustments as required for meeting repayment obligations.

REQUIREMENTS OF LOCAL COOPERATION: None required for construction or the mitigation analysis.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $137,000,000 for construction and $2,000,000 for the mitigation analysis is the first estimate submitted to Congress.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: Juvenile Fish Mitigation construction is generally covered by existing environmental impact statements. However, environmental assessments are being done for new work and supplements to existing statements will be prepared as necessary.

OTHER INFORMATION: Funds to initiate construction at Lower Granite, Little Goose and Lower Monumental on the Snake River and McNary on the Columbia River were appropriated in Fiscal Year 1988. The FY 1991 request is the first budget in which the Administration has requested funds for this mitigation.

1257

1/ Excludes cost of the mitigation analysis which will be allocated at the conclusion of the analysis.

APPROPRIATION TITLE: Construction, General - Multiple Purpose Power Projects

PROJECT: Lower Snake River Fish and Wildlife Compensation, Washington, Oregon, Idaho, (Continuing)

LOCATION: Hatchery sites are located at McCall, Idaho, about 1,500 feet downstream from Payette Lake; Lyons Ferry, Washington at River Mile 59 on the Snake River; Lookingglass, Oregon about 10 miles northwest of Elgin, Oregon; Hagerman, Idaho, 10 miles west of Twin Falls, Idaho; Irrigon Hatchery, about 10 miles west of Umatilla, Oregon; Dworshak Expansion, Clearwater Hatchery, about 5 miles west of Orofino, Idaho; Sawtooth Hatchery about 5 miles south of Stanley, Idaho; Magic Valley Hatchery about 4 miles north of Buhl, Idaho; and Clearwater Hatchery about 5 miles west of Orofino, Idaho. Fishing and hunting access and wildlife habitat lands will be located in Washington and Idaho.

DESCRIPTION: The project consists of a number of Chinook and Steelhead hatcheries that will provide 27,000,000 juvenile salmon and steelhead annually. These fish will be released in streams for migration to the Pacific Ocean. Adult salmon and steelhead resulting from these releases will provide both sport and commercial fishing opportunities with over 4 million pounds of fish going to the commercial fisheries and providing approximately 689,000 additional angler days of sport fishing. An estimated 132,000 adult fish will return to the project area of the Snake River. In addition to the anadromous fish, 93,000 pounds of trout or equivalent sports fish will be reared and released in Eastern Washington and Idaho streams which will provide 45,000 additional angler days of sport fishing. There will be an aggregate of 24,150 acres in fee or easement for fisherman access, wildlife habitat and hunting access. Additionally a program has been completed with Washington State Department of Game to produce an equivalent of 20,000 game birds per year for 20 years.

AUTHORIZATION: Water Resource Development Act of 1976 as modified by the Water Resource Development Act of 1986.

REMAINING BENEFIT-REMAINING COST RATIO: Not applicable.

TOTAL BENEFIT-COST RATIO: Not applicable.

INITIAL BENEFIT-COST RATIO: Not applicable.

BASIS OF BENEFIT COST RATIO: Not applicable.

1258

SUMMARIZED FINANCIAL DATA

		STATUS: (1 Jan 90)	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Total Appropriation Requirement	198,000,000	Entire Project	73	SEP 94
		Wildlife Compensation Facilities	88	SEP 94
Future Non-Federal Reimbursement	194,836,000			
		Fish Facilities	79	SEP 93
Estimated Federal Cost (Ultimate)	3,164,000	Clearwater Hatchery	1	SEP 93
		Lands	35	SEP 94
Estimated Non-Federal Cost	195,059,000			
Cash Contributions 223,000				
Reimbursements 194,836,000				
Power 194,836,000				

		ACCUM. PCT. OF EST. FED COST
Total Estimated Project Cost	198,223,000	
Allocations to 30 Sep 1989	149,237,000	
Conference Allowance for FY 1990	12,261,000	
Allocation for FY 1990	12,473,000	
Allocations through FY 1990	161,710,000	82
Allocation Requested for FY 1991	18,400,000	91
Scheduled Balance to Complete after FY 1991	17,890,000	
Unscheduled Balance to Complete after FY 1991	0	

1/ Reflects reduction of $1,183,000 assigned as savings and slippage, $126,000 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $1,521,000 reprogrammed to the projects.

1259

PHYSICAL DATA

Capacity of Hatcheries
9,160,000 Fall Chinook Smolts - 101,800 lbs.
6,750,000 Spring and Summer Chinook Smolts - 450,000 lbs.
11,020,000 Summer Steelhead - 1,377,500 lbs.
93,000 lbs. of Resident Sport Fishery

Acquisition of 24,150 acres for fisherman access and wildlife compensation.

JUSTIFICATION: The Lower Snake River Fish and Wildlife project will provide compensation for the losses to the fish and wildlife resources that were caused by the construction and operation of the four Lower Snake River dam projects (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite).

FISCAL YEAR 1991: The requested amount of $18,400,000 will be applied as follows:

	Amount
Continue fish hatchery construction	14,330,000
Continue wildlife land acquisition	2,000,000
Continue cultural resource preservation	30,000
Engineering and design for parent project	1,040,000
Supervision and administration	1,000,000
TOTAL	18,400,000

1260

NON-FEDERAL COSTS: Costs allocable to power presently estimated at $194,836,000 are reimbursable. This project is a part of the Federal Columbia River Power System. Bonneville Power Administration (BPA), the Federal marketing agency, establishes system rate levels adequate to recover all capital investment costs for generating projects (including Corps generating projects) within a 50-year period and to repay annual OM&R and interest expenses. BPA submits an annual financial statement to Congress, as required by law, on repayment and periodically recommends rate adjustments as required for meeting repayment obligations. In addition, an initial cash contribution to construct an expansion to the Lyons Ferry Hatchery ($223,000) has been furnished.

STATUS OF LOCAL COOPERATION: None required for construction.

COMPARISON OF FEDERAL COST ESTIMATE: The current Federal cost estimate of $198,000,000 is an increase of $9,000,000 from the latest estimate ($189,000,000) submitted to Congress. This change includes the following items:

Item	Amount
Design Changes	$9,000,000
TOTAL	$9,000,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final Environmental Impact Statement was filed with the Council on Environmental Quality on 29 October 1977.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fiscal Year 1978 and for construction in Fiscal Year 1979. The purpose of the entire project is fish and wildlife mitigation for the four mainstem dams on the Snake River.

1981

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION.

a. Channels and Harbors. The program request of $40,119,000 provides for essential maintenance work on 36 channel and harbor projects named in the list which follows. The work to be accomplished under this activity consists of maintaining the navigation channels and basins of coastal harbors by means of dredging, removal of navigation obstructions, and repair of navigation structures, as authorized in the laws adopting river and harbor projects.

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	OBLIGATIONS ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
ALASKA				
Anchorage Harbor	$ 1,602,000	$ 1,696,000	$ 1,776,000	Variation in dredging requirements.
Bethel Harbor	28,000	0	498,000	Project surveillance FY 89. Periodic dredging FY 91.
Cordova Harbor	0	0	405,000	Periodic dredging FY 91.
Dillingham Harbor	715,000	709,000	787,000	Variation in dredging requirements.
Homer Harbor	334,000	437,000	413,000	Variation in dredging requirements.
Ninilchik Harbor	199,000	270,000	253,000	Variation in dredging requirements.
Nome Harbor	428,000	342,000	490,000	Variation in dredging requirements.
OREGON				
Chetco River	130,000	417,000	6,000	Periodic dredging FY 89 and FY 90. Project surveillance FY 91.
Columbia and Lower Willamette Rivers below Vancouver, WA and Portland, OR	12,695,000	10,162,000	10,883,000	Variation in dredging requirements.
Columbia River at the Mouth	8,213,000	6,701,000	8,571,000	Variation in dredging requirements.
Columbia River between Vancouver, WA and The Dalles, OR	201,000	394,000	378,000	Variation in dredging requirements.
Coos and Millicoma Rivers	146,000	168,000	172,000	Variation in dredging requirements.

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29 JAN 1990

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION. (Continued)

a. Channels and Harbors. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	OBLIGATIONS ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
OREGON (Continued)				
Coos Bay	$10,603,000	$ 4,720,000	$ 4,166,000	Variation in dredging requirements. Repair north jetty FY 89.
Coquille River	130,000	235,000	274,000	Variation in dredging requirements.
Port Orford	189,000	289,000	105,000	Variation in dredging requirements.
Rogue River	708,000	416,000	532,000	Variation in dredging requirements. Repair pile dike FY 89.
Siuslaw River	357,000	786,000	727,000	Variation in dredging requirements.
Skipanon Channel	225,000	206,000	216,000	Variation in dredging requirements.
Tillamook Bay and Bar	60,000	129,000	6,000	Project surveillance FY 89, FY 90 and FY 91. Engineering for north jetty repair FY 89 and FY 90.
Umpqua River	662,000	952,000	1,260,000	Variation in dredging requirements.
Yaquina Bay and Harbor	688,000	422,000	1,151,000	Variation in dredging requirements.
WASHINGTON				
Anacortes Harbor	7,000	0	12,000	Project surveillance FY 89 and FY 91.
Bellingham Harbor	13,000	20,000	815,000	Project surveillance FY 89 and FY 90. Periodic dredging FY 91.
Columbia River at Baker Bay	516,000	390,000	347,000	Variation in dredging requirements.
Columbia River, Chinook to Head of Sand Island	556,000	106,000	330,000	Variation in dredging requirements.

1263

29 JAN 1990

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION. (Continued)

a. Channels and Harbors. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
WASHINGTON (Continued)				
Elochoman Slough	$ 58,000	$ 122,000	$ 106,000	Variation in dredging requirements.
Everett Harbor and Snohomish River	986,000	486,000	1,027,000	Variation in dredging requirements.
Grays Harbor and Chehalis River	2,891,000	3,969,000	2,493,000	Variation in dredging requirements.
Kenmore Navigation Channel	0	0	7,000	Project surveillance FY 91.
Lake Crockett	0	0	26,000	Project surveillance FY 91.
Olympia Harbor	2,000	0	20,000	Project surveillance FY 89 and FY 91.
Puget Sound and Its Tributary Waters	568,000	594,000	707,000	Variation in debris collection.
Quillayutte River	902,000	0	487,000	Periodic dredging FY 89 and FY 91.
Seattle Harbor	143,000	548,000	397,000	Project surveillance FY 89. Periodic dredging FY 90 and FY 91.
Swinomish Channel	91,000	59,000	29,000	Project surveillance FY 89, FY 90 and FY 91.
Tacoma Harbor	0	88,000	62,000	Project surveillance FY 90 and FY 91.
Willapa River and Harbor	355,000	85,000	185,000	Periodic dredging FY 89 and FY 91. Project surveillance FY 90.

1264

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

1. NAVIGATION. (Continued)

a. Channels and Harbors. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
Other Projects Maintained Periodically	$ 1,453,000	$ 176,000	$ 0	
TOTAL - CHANNELS AND HARBORS	$46,854,000	$36,094,000	$40,119,000	

b. Locks and Dams. The program request of $7,411,000 provides the amount for operational requirements of two projects. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for the day-to-day functioning of projects; and periodic maintenance, repairs, replacement and modernization.

OREGON				
Willamette River at Willamette Falls	$ 613,000	$ 554,000	$ 709,000	Repair lock gates #1 and #7, and replace street lighting for access road FY 91.
WASHINGTON				
Lake Washington Ship Canal	4,735,000	4,088,000	6,702,000	Engineering for large lock upstream service and guard gate repair FY 89. Repair upstream service and guard gates FY 91.
TOTAL - LOCKS AND DAMS	$ 5,348,000	$ 4,642,000	$ 7,411,000	
TOTAL - NAVIGATION	$52,202,000	$40,736,000	$47,530,000	

1265

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL.

a. Reservoirs. The program request of $13,314,000 for the operation and maintenance of 14 flood control reservoirs, including essential repair work and scheduling of flood control reservoir operations within the Division provides the amount for operational requirements. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, material and parts required for day-by-day functioning of projects; periodic maintenance, repairs, and replacements; and contract law enforcement. The requested amount also includes application of special recreation use fees for recreation areas.

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
ALASKA				
Chena River Lakes	$ 985,000	$1,044,000	$ 1,197,000	Increased natural resource management and water control analysis FY 90 and FY 91.
IDAHO				
Lucky Peak Lake	855,000	754,000	683,000	Purchase intake bulkheads FY 89. Seismic investigation FY 89 and FY 90.
OREGON				
Applegate Lake	445,000	422,000	431,000	
Blue River Lake	136,000	156,000	159,000	
Cottage Grove Lake	675,000	697,000	630,000	Control erosion at Shortridge Park FY 89 and FY 90.

1266

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL. (Continued)

a. Reservoirs. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	OBLIGATIONS ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
OREGON (Continued)				
Dorena Lake	$ 707,000	$ 372,000	$ 497,000	Control erosion at Baker Bay Park FY 89. Improve roads at Schwarz Park FY 91.
Fall Creek Lake	363,000	425,000	357,000	Evaluation of fish passage facilities, FY 90.
Fern Ridge Lake	751,000	580,000	592,000	Provide remote control of regulating outlet including spillway gate modifications FY 89.
Willow Creek Lake	682,000	417,000	437,000	Increased water quality analysis requirements and engineering studies FY 89.
WASHINGTON				
Howard A. Hanson Reservoir	702,000	701,000	750,000	
Mill Creek Lake	1,048,000	522,000	528,000	Replace sanitary facilities, update master plans and conduct geophysical investigations for potential reservoir liner requirement FY 89.
Mt. St. Helens Sediment Control Structure	0	0	566,000	Initial maintenance of sediment control structure FY 91.
Mud Mountain Dam	14,357,000	11,029,000	5,710,000	Major rehabilitation FY 89 ($13,397,000), FY 90 ($9,948,000), and FY 91 ($4,482,000). See justification following this table.

1267

29 JAN 1990

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL. (Continued)

a. Reservoirs. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	OBLIGATIONS ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
WASHINGTON (Continued)				
Wynoochee Lake	$ 1,641,000	$ 1,235,000	$ 250,000	Studies, coordination and related activities pertinent to the project transfer of OMR&R (Operations, Maintenance, Repairs and Replacement) to the city of Aberdeen, Washington FY 89. Decreased operations and maintenace FY 91 reflects transfer of OMR&R to city of Aberdeen, Washington.
Scheduling Reservoir Operations	460,000	409,000	527,000	Increased non-federal reservoir control operations FY 89 and FY 91.
TOTAL - RESERVOIRS	$23,807,000	$18,763,000	$13,314,000	

b. Channel Improvements, Inspection and Miscellaneous Maintenance. The program request of $1,334,000 provides for the essential annual and periodic maintenance requirements of four flood control protection projects and inspection of completed works within the Division during the budget year.

OREGON				
Willamette River Bank Protection	$ 63,000	$ 98,000	$ 104,000	Increased bank revetment repairs FY 90 and FY 91.
WASHINGTON				
Stillaguamish River	97,000	90,000	91,000	Increased bank revetment repairs FY 89.

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APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

2. FLOOD CONTROL. (Continued)
b. Channel Improvements, Inspection and Miscellaneous Maintenance. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
WASHINGTON (Continued)				
Tacoma, Puyallup River	$ 30,000	$ 37,000	$ 31,000	Increased bank revetment repair FY 90.
WYOMING				
Jackson Hole Levees	51,000	379,000	787,000	Undertake project maintenance study FY 89 and FY 90. Initiate maintenance in FY 90. Acquisition of quarry rights and development in FY 90 and FY 91.
Inspection of Completed Works	515,000	367,000	321,000	Ririe Lake analysis including explorations and geotechnical work FY 89. Increased inspections FY 90.
Inspection of Non-Federal Levees	8,000	0	0	Requirements for FY 89, FY 90 and FY 91 included in the appropriation "Flood Control and Coastal Emergencies". FY 89 actual obligations shown here reflect FY 88 appropriation carry overs.
TOTAL - CHANNEL IMPROVEMENTS, INSPECTIONS AND MISCELLANEOUS	$ 764,000	$ 971,000	$ 1,334,000	
TOTAL - FLOOD CONTROL	$24,571,000	$19,734,000	$14,648,000	

1269

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991.

3. MULTIPLE PURPOSE POWER PROJECTS. The program request of $93,884,000 for the operation and maintenance of 18 multiple purpose projects provides the amount for operational requirements. Annual requirements are for operation and ordinary maintenance of project facilities; labor, supplies, materials and parts required for the day-by-day functioning of the projects; and periodic maintenance, repairs and replacements. The requested amount also includes application of special recreation use fees for recreation areas.

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	OBLIGATIONS ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
IDAHO				
Albeni Falls Dam	$ 3,417,000	$ 3,877,000	$ 2,939,000	Establish survey system FY 89 and FY 90.
Dworshak Dam and Reservoir	6,127,000	5,928,000	6,105,000	Purchase powerplant data acquisition control system FY 89 and FY 90. Increased fish hatchery maintenance FY 91.
MONTANA				
Libby Dam, Lake Koocanusa	3,909,000	3,864,000	3,898,000	Paint spillway gates, repair grout curtain, and determine low water access requirements to Forest Service administered facilities FY 89. Provide cultural resource mitigation FY 90. Engineering for repair of sluice inlet corrosion and replace telephone system FY 91.
OREGON				
Bonneville Lock and Dam	10,735,000	11,090,000	11,645,000	Replace main power transformer FY 91.
Cougar Lake	715,000	726,000	943,000	Provide maintenance of foundation drains FY 91.
Detroit Lake	1,441,000	1,454,000	1,698,000	Overhaul generators and turbines FY 91.
Green Peter-Foster Lakes	1,710,000	1,723,000	2,004,000	Provide initial cultural resource inventory FY 91.

1270

29 JAN 1990

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. MULTIPLE PURPOSE POWER PROJECTS. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	OBLIGATIONS ESTIMATED FY 1990	OBLIGATIONS ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
OREGON (Continued)				
Hills Creek Lake	$ 597,000	$ 535,000	$ 562,000	
John Day Lock and Dam	10,776,000	11,961,000	12,535,000	Major powerhouse rehabilitation FY 89 ($2,704,000), FY 90 ($3,112,000), FY 91 ($3,700,000). See justification following this table.
Lookout Point Lake	2,998,000	2,437,000	2,708,000	Repair two head gates, purchase backhoe, and generator packing sleeves FY 89. Provide maintenance of foundation drains FY 91.
Lost Creek Lake	2,550,000	2,597,000	3,085,000	Update master plans FY 91.
McNary Lock and Dam, Lake Wallula	9,002,000	10,004,000	10,845,000	Purchase traveling fish screen parts FY 89, FY 90 and FY 91. Purchase powerplant data acquisition control system FY 90 and FY 91.
WASHINGTON				
Chief Joseph Dam, Rufus Woods Lake	9,123,000	9,498,000	9,488,000	
Ice Harbor Lock and Dam, Lake Sacajawea	7,386,000	4,740,000	5,682,000	Repair navigation lock downstream gate FY 89 and FY 90. Inspect and upgrade underground storage tanks, purchase parts for main unit circuit breaker and governor, and repair unit 4, 5 & 6 cavitation FY 91.

1271

29 JAN 1990

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

3. MULTIPLE PURPOSE POWER PROJECTS. (Continued)

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
WASHINGTON (Continued)				
Little Goose Lock and Dam, Lake Bryan	$ 3,811,000	$ 3,496,000	$ 3,553,000	Purchase powerplant data acquisition control system FY 89 and FY 90. Purchase traveling fish screen parts FY 90 and FY 91.
Lower Granite Lock and Dam	7,795,000	6,105,000	5,169,000	Sedimentation study and purchase powerplant data acquisition control system FY 89 and FY 90. Purchase traveling fish screen parts FY 90.
Lower Monumental Lock and Dam, Lake Herbert G. West	5,841,000	3,992,000	4,306,000	Repair unit #2 turbine FY 89 and FY 90. Purchase powerplant data acquisition control system FY 89, FY 90 and FY 91. Update master plans FY 91.
The Dalles Lock and Dam	7,779,000	6,988,000	6,719,000	Paint spillway gates and purchase powerplant data acquisition control system FY 89.
TOTAL - MULTIPLE PURPOSE PROJECTS	$95,712,000	$ 91,015,000	$93,884,000	

1272

29 JAN 1990

NORTH PACIFIC DIVISION
JUSTIFICATION OF ESTIMATE

APPROPRIATION TITLE: Operation and Maintenance, General, FY 1991

4. PROTECTION OF NAVIGATION. The program request of $942,000 provides for project condition surveys on some projects for which maintenance is not scheduled in the budget year.

PROJECT	OBLIGATIONS ACTUAL FY 1989	ESTIMATED FY 1990	ESTIMATED FY 1991	EXPLANATION OF MAJOR CHANGES
Project Condition Surveys	$ 805,000	$ 915,000	$ 942,000	Increased hydrographic condition surveys in Alaska, Oregon and Washington FY 90 and FY 91.
TOTAL - PROTECTION OF NAVIGATION	$ 805,000	$ 915,000	$ 942,000	
GRAND TOTAL	$173,290,000	$152,400,000	$157,004,000	

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APPROPRIATION TITLE: Operation & Maintenance, General - Reservoirs (Flood Control)

PROJECT: Mud Mountain Dam, Washington - (Major Rehabilitation) (Continuing)

LOCATION: Mud Mountain Dam is located at river mile 29.6 on the White River, 5 miles upstream and southeast of Enumclaw, and 24 miles southeast of Tacoma in western Washington.

DESCRIPTION: The proposed modifications will consist of constructing a seepage control barrier in the dam. The barrier will consist of a concrete cutoff wall in the core of the dam.

AUTHORIZATION: Flood Control Act of 1936 authorized the Mud Mountain Dam and reservoir on the White River as the main unit of the Puyallup River flood control project.

REMAINING BENEFIT - REMAINING COST RATIO: Not applicable because monetary benefits have not been quantified.

TOTAL BENEFIT - COST RATIO: Not applicable because monetary benefits have not been quantified.

INITIAL BENEFIT - COST RATIO: Not applicable.

BASIS OF BENEFIT COST RATIO: Not applicable.

SUMMARIZED FINANCIAL DATA		STATUS 1 Jan 1990	PERCENT COMPLETE	COMPLETION SCHEDULE
Estimated Federal Cost	$37,000,000	Entire Project	51	Sep 92
Estimated Non-Federal Cost	0			
Total Estimated Project Cost	$37,000,000			

		Accum. Pct. of Est. Fed. Cost
Allocations to 30 September 1989	15,420,000	
Conference Allowance for FY 1990	4,100,000	
Allocation for FY 1990	9,943,500 1/	
Allocations thru FY 1990	25,363,500	69
Allocation Requested for FY 1991	4,482,000	81
Scheduled Balance to Complete after FY 1991	7,154,500	

1/ Reflects $556,500 sequestered in accordance with the Gramm, Rudman, Hollings Act and $6,400,000 reprogrammed to the project.

PHYSICAL DATA:

Dam:	Type	- Rockfill with earth core	Spillway:	Type	- Uncontrolled
	Height	- 425 feet above bedrock		Design Capacity	- 139,000 cfs
	Crest	- 700 feet long		Overtopping Capacity	- 220,000 cfs
	Width	- 1,600 feet at base, 50 feet at crest			

JUSTIFICATION: Mud Mountain Dam became operational in 1948, and presently provides flood damage protection for about 850 acres of land on the White River and approximately 6,200 acres on the Puyallup River. The area is used for agriculture, residential, industrial, commercial, and transportation developments related to the intensely developing Port of Tacoma area. Major transportation facilities include the Burlington Northern and the Tacoma Beltline Railroads; Interstate Highway 5; and U.S. Highway 99 and 410. The area has a population of more than 190,000 people with 73,000 in the Mud Mountain Dam flood plain.

Geological investigations to date have indicated that the core of the dam is progressively deteriorating due to water seepage from the reservoir. Further deterioration could cause loss of the dam core material, increased flows through the dam, and dam downstream slope slumping; all leading to loss of dam freeboard and potential dam embankment failure.

FISCAL YEAR 1991: The requested amount of $4,482,000 will be applied as follows:

Continue Dam Feature	$3,482,000
Engineering and Design	300,000
Supervision and Administration	700,000
Total	$4,482,000

NON-FEDERAL COSTS: None required.

STATUS OF LOCAL COOPERATION: Mud Mountain Dam is an operational Federal project with no local sponsorship. Local cooperation is not required for this major rehabilitation project.

COMPARISON OF FEDERAL COST ESTIMATES: The current Federal cost estimate of $37,000,000 is an increase of $6,000,000 from the latest estimate ($31,000,000) presented to the Congress (FY 1990). This change is due to changed conditions experienced by the cutoff wall contractor requiring consolidation grouting.

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: An environmental essessment was completed in June 1986.

OTHER INFORMATION: This Operation and Maintenance, General major rehabilitation project for seepage control and the Construction, General dam safety assurance project had an overall General Design Memorandum (GDM) published in July 1986. The core seepage problem was determined to be a major rehabilitation project in August 1986. The GDM and original studies were funded prior to FY86 under the Operation and Maintenance, General appropriation. Construction, General funds were appropriated in FY86 to initiate construction of the dam safety project. FY86 Construction, General funds were used to complete the overall GDM and a Dam Seepage Control supplement to the GDM that was published in November 1986. Operation and Maintenance, General funds (Major Rehab.) are being used for the remainder of the cutoff wall project, beginning in FY87.

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APPROPRIATION TITLE: Operation & Maintenance, General - Multiple-Purpose Power Projects

PROJECT: John Day Powerhouse, Oregon and Washington (Major Rehabilitation)(Continuing)

LOCATION: On the Columbia River at the head of The Dalles Dam pool, River Mile 215.6, about 100 miles east of Portland, Oregon.

DESCRIPTION: Major rehabilitation of 16 generating units (turbines and generators) and appurtenant support equipment (controls, station service and circuit breakers).

AUTHORIZATION: 1950 and 1965 Flood Control Acts (Existing Project).

REMAINING BENEFIT - REMAINING COST RATIO: 1.7 to 1 at 8-1/8 percent.

TOTAL BENEFIT - COST RATIO: 1.14 to 1 at 8-1/8 percent.

INITIAL BENEFIT - COST RATIO: 1.2 to 1 at 8-1/8 percent for turbine and generator repair.

BASIS OF BENEFIT - COST RATIO: Turbine and generator repair benefits are from Reconnaissance Report approved in August 1987 at October 1983 price levels.

SUMMARIZED FINANCIAL DATA			STATUS:	PERCENT	COMPLETION
Estimated Appropriation Requirement		$32,900,000	(1 Jan 1990)	COMPLETE	SCHEDULE
Future Non-Federal Reimbursement		$32,900,000	Entire Project	60	Jul 1993
Estimated Federal Cost (Ultimate)		0			
Estimated Non-Federal Cost		$32,900,000			
Reimbursements	$32,900,000				
Power	$32,900,000				
Total Estimated Project Cost		$32,900,000			

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Division: North Pacific District: Portland John Day Powerhouse, OR & WA (Major Rehabilitation)

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Mr. BEVILL. Mrs. Boggs, do you have any questions?

Mrs. BOGGS. Yes.

Mr. BEVILL. The Chair recognizes Mrs. Boggs.

Mrs. BOGGS. Thank you so much, Mr. Chairman.

Gentlemen, I was very interested in the hopper dredges work in the Alaska oil spill.

General STEVENS. Yes, ma'am.

Mrs. BOGGS. You referred in your full testimony to an innovative way of being able to take care of the oil cleanup, but you did not spell it out. Would you tell us what that was?

General STEVENS. Yes, Mrs. Boggs. We felt that we could do something up there to help in that disastrous oil spill in Alaska. We ultimately dispatched both dredges from the North Pacific Division northwards to Prince William Sound.

They arrived on the scene approximately three to four weeks after the initial spill. By that time, the oil had coagulated into a thing called mousse. It looks like brown pudding floating in the clear water.

A very innovative crew on one of the dredges decided that if they turned the dredge suction head over, and then raised it up underneath the oil spill, collected within booms, they could suck it into the hopper of the dredge. And in that regard, we were able to collect more than the very famous Russian vessel that was sent over by the Soviet Union. So it worked very, very well.

Mrs. BOGGS. What did you do with the oil that you had collected?

General STEVENS. Well, that was a problem.

Mrs. BOGGS. How did you dispose of it?

General STEVENS. It had to be sucked out of the dredge hoppers and placed into barges, and then moved out of the area for later disposal by Exxon Corporation.

That proved to be difficult. It has such a consistency that it really gums up the hopper of the dredge. But given the nature of the emergency and such future happenings, those dredges can be used, and are ready to be used.

Mrs. BOGGS. I was interested in your comment that they could be used, and we should think about that.

Have they been used, for instance, in the recent New York-New Jersey spill?

General STEVENS. I am not sure if the Corps participated there. Of course, the North Pacific Division did not.

We did, however, dispatch a team to reconnoiter that spill off of Huntington Beach, California, recently, and it was determined there that because of the water temperatures and the difference in the nature of the spill that other resources could be better used than our dredges. But we were ready to go, if we were needed.

Mrs. BOGGS. I was also interested in the fact that they could clean up the beaches.

General STEVENS. Yes, ma'am they could be used for that, although we did not do that.

We looked at using the dredges to pump water through an array of piping which would then wash the oil from the beaches, but we never actually engaged them in that operation.

Mrs. BOGGS. I am glad to know that your division and the Corps are looking into this. Our greatest difficulties with any kind of oil contamination does not come from offshore oil drilling, as many people assume it would, but the transportation accidents.

General STEVENS. Yes, ma'am. That is true.

Mrs. BOGGS. I thank you very much.

Thank you, Mr. Chairman.

General STEVENS. Thank you, Mrs. Boggs.

Mr. BEVILL. I see our friend, Congressman Norm Dicks, a member of the House Appropriations Committee, is here, and has some questions for you. I am going to recognize Mr. Dicks at this time.

GRAYS HARBOR

Mr. DICKS. Thank you, Mr. Chairman. I appreciate your kindness in letting me be before this committee. I served here about a decade ago, and I always enjoy and appreciate the work that you do.

I want to welcome our friends from the North Pacific. General Stevens, it is nice to see you again.

I am sorry that I missed your testimony, but I will take a look at it.

Some $13 million was appropriated in fiscal year 1990 to start construction of the Grays Harbor navigation improvement system. What is the status of the project, including the local cooperation agreement, and construction contracts?

General STEVENS. Congressman, I am happy to report that that project is a success story at this point.

We—in fact I, personally—last Thursday, just a few days ago, signed the environmental record of decision and a finding of no significant impact.

The local cooperation agreement was signed by the Army and the local sponsor on Friday last, on the 16th. We have the invitation for bids out on the street now, and we hope to make contract award in April and commence dredging in May.

It has been a success story. I would like to compliment the project's sponsor, the Port of Grays Harbor. Mr. Cliff Muller, the director of the port, ably assisted by Mr. Hank Soike, who preceded him, have been absolutely delightful to work with.

Mr. DICKS. Well, we know those two individuals, and they are certainly of very high quality.

This project, of course, has had a lot of time to mature, so we are glad to see that it is finally moving on.

You say that dredging will start sometime in the April-May time frame?

General STEVENS. We will award the contract in April, Mr. Dicks, and then they will have to move the dredges to the site, so it looks like May, and that will be on schedule.

Mr. DICKS. The President's budget for fiscal year 1991 includes $10.5 million to continue construction of the Grays Harbor project. Is this level of funding sufficient to keep the project on schedule?

General STEVENS. Absolutely, sir.

Mr. DICKS. Does the Corps have any additional capability?

General STEVENS. No, sir.
Mr. DICKS. Just checking. [Laughter.]

LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN

I was extremely pleased that you included $2 million for land acquisition on the Lower Snake River Fish and Wildlife Compensation Plan. This would provide for the second year of the land acquisition program for wildlife enhancement.

Would you provide me with an update of the project activities?

General STEVENS. Yes, sir, I will.

FY 1990 funds were made available as a Congressional add—$861,000. We are proceeding with the acquisition of wildlife lands primarily in the State of Washington. There are also 50 acres which will be acquired in the State of Idaho.

Using the $2 million which we have budgeted in our request for 1991, we will proceed with the acquisition of these lands.

COLUMBIA RIVER, JUVENILE FISH MITIGATION

Mr. DICKS. Good. For the first time in many years, your budget includes specific funding for juvenile fish mitigation on the Columbia River, $15.8 million. I am extremely pleased by the Corps' recognition of this need. How are those funds expected to be used?

General STEVENS. Congressman, you are absolutely right. This is the first time that it has been in the President's budget request.

Of course, we have proceeded on the basis of three previous Congressional adds in the design, research and construction of mitigation measures at Corps dams along the Snake and Columbia rivers. The monies made available in fiscal year 1991 will continue that effort with implementation of facilities at four of the dams and undertaking a mitigation analysis.

CHEHALIS RIVER, WASHINGTON

Mr. DICKS. All right.

As you know, during the heavy rains this past January in Washington State, there was severe flooding in the Centralia area. This included a two-mile section of I–5 which was closed for four days.

Clearly, we cannot afford to suffer the closure of the State's major north-south transportation link. What is the status of the Corp's flood control projects in the Centralia area? Can they be accelerated?

General STEVENS. Sir, we have ongoing a couple of flood control studies in that area. I do not believe we have capability to accelerate those at this time, but they will satisfy precisely the flooding that occurred.

NOOKSACK AND SKAGIT RIVERS, WASHINGTON

Mr. DICKS. Last November and December, extensive flooding occurred on the Nooksack and Skagit Rivers in the State of Washington. What is the capability to prepare a reconnaissance report for each of these two rivers?

General STEVENS. Sir, subject to the usual constraints, we could use $150,000 in capability for each study to initiate and complete

reconnaissance studies on both the Nooksack and the Skagit Rivers.

WYNOOCHEE DAM, WASHINGTON

Mr. DICKS. Okay. Would you provide an update on the status of the Wynoochee Dam project? What is the Corps' view on transfer of fee title?

General STEVENS. Let me tell you first, Congressman, where we are right now.

The Seattle District and the city of Aberdeen are moving towards a transfer of the operation and maintenance responsibilities of Wynoochee this July.

We are doing so judiciously, because we recognize that in transferring those responsibilities to the city it is something that they have got to be ready to accept. We will ensure that in our view, they are ready to do that.

Mr. DICKS. Good.

General STEVENS. I understand that they have expressed an interest in fee simple ownership. At this juncture, we are not planning to transfer, absent legislation, that project in that style.

Mr. DICKS. We would have to pass some legislation in order to allow for that?

General STEVENS. Yes, sir. And it would carry with it—unless the appropriate language were provided—some liabilities in which the city may be concerned.

MOUNT SAINT HELENS, WASHINGTON

Mr. DICKS. Lastly, just for the record, can you give us the status of the Mount St. Helens project?

General STEVENS. Yes, sir, I can.

We will be coming to the Congress for no more funds on Mount St. Helens. We are moving towards project completion now, and we are hoping to dedicate the sediment retention structure on the tenth anniversary of the eruption of Mount St. Helens in May of 1980.

CORPS SUPPORT TO DOE AT HANFORD, WASHINGTON

Mr. DICKS. Is the Walla Walla District office within your division?

General STEVENS. Yes. Sir. Walla Walla is one of the four districts.

Mr. DICKS. Does it have some capability to work on the Hanford cleanup problem?

General STEVENS. Mr. Dicks, if I may—with all due respect—refer that question to our Chief of Engineers who is anxiously considering that question?

Mr. DICKS. Fine.

General Kelly, can you tell us?

General KELLY. I am General Kelly, Director of Civil Works. The Corps has significant experience in the management of public engineering programs and has in place proven procedures for contract management. The Corps has the resources technical expertise and procedures—to hold contractors accountable. It is in this area that

the Corps can be of the greatest help to DOE. The Corps has the capability to insure the government gets full value for its investment.

An essential element of executive responsibility is insuring that the end is achieved and that the taxpayer gets his money's worth. This critical oversight function cannot be performed by private construction managers under contract. It is a function for the owner, the Government. Corps employees are imbued with and dedicated to an ethic of public service, and have the necessary technical and project management skills to protect the Government's interests.

Currently the Corps is constructing facilities for the demilitarization of chemical weapons, has an extensive role in the Superfund cleanup effort as agent of the Environmental Protection Agency, and is managing a significant protion of the environmental restoration for DOD. The Corps has offered and is ready to assist DOE in its hazardous, toxic and radioactive waste management responsibilities. Since the Corps does not currently have a nulcear mission we would have to augment our existing technical capabilities with specific expertise in the nuclear field.

Mr. DICKS. Okay. Now, we are doing a vitrification plant out there. You would not be involved in that necessarily, would you?

General KELLY. No, sir.

Mr. DICKS. Thank you.

Thank you Mr. Chairman.

Mr. BEVILL. Do you have some additional questions that you would like to submit for the record?

Mr. DICKS. Yes, I do.

[The information follows:]

LACONNER WASHINGTON STUDY

Mr. Dicks. The FY 1990 Conference allowance for the LaConner, Washington study was $125,000. What is the status of this study?

General Stevens. Sir, a reconnaissance report and decision document have been completed. Although the study determined that a project would be feasible, we have been advised that there is no generic Federal responsibility for stream bank erosion control established in law and therefore, all activity had been terminated.

TRI-CITIES, WASHINGTON LEVEES RECONNAISSANCE STUDY

Mr. Dicks. Last year we appropriated $143,000 for the Tri-Cities Levees Reconnaissance Study which appears to be insufficient to complete the study. As you know, Corps policy requires reconnaissance studies to be completed within one year. My understanding is that a recommendation has been made to provide an additional $105,000 from existing funds to enable a bare bones study to be completed. Is that your intention?

General Stevens. Sir, we are currently reviewing the scope of the reconnaissance phase studies for the Tri-Cities Levees, Washington. If that review indicates additional study requirements, funds would be made available using the Corps reprogramming authorities, from existing resources.

COLUMBIA RIVER TREATY ACCESS SITES STUDY

Mr. Dicks. What is the status of the Columbia River Treaty Access Sites study? Would it be possible for the Corps to redirect FY 90 funds to accelerate the start of the site selection process?

General Stevens. Sir, we are considering the authorized Columbia River Treaty Access Sites as part of the master planning process underway at the projects affected by the legislation. Specific site selection activities would be initiated with preconstruction engineering and design funds in our FY 91 program request. Initiation of work at specific sites during the current year would require specific Congressional direction.

HOWARD HANSON DAM

Mr. Dicks. Would you describe the current project cost of the Howard Hanson Dam project and include the cost the project sponsor would bear due to reallocation of project purposes?

General Stevens. Sir, reconnaissance level studies indicate that the current total project cost estimate to add water supply storage at the existing Howard Hanson Dam would be $63.5 million. Of that amount, about $21 million would be for construction costs and an additional $42.5 million would be assignable to local interests based on our procedures for determining local interests costs associated with reallocating water supply storage in an existing Federal reservoir. All of these costs will have to be financed by the local sponsor. Feasibility level studies will address alternative levels of storage allocations for water supply and will provide a firm basis for determining local interests' costs and benefits.

ADDITIONAL QUESTIONS

Mr. BEVILL. I know that other members will have some questions, too, and I will also submit mine for the record, General. We appreciate the good job you have done on that oil cleanup.

[Questions submitted by Congressman Bevill:]

SNOHOMISH RIVER AND TRIBUTARIES, WASHINGTON

Mr. Bevill. What is the status of the Snohomish River and Tributaries, Washington, feasibility study which was scheduled to start in FY 1990?

General Stevens. Mr. Chairman, the reconnaissance studies have found that shallow draft navigation improvements on the Lower Snohomish River are not economically feasible. The reconnaissance phase of the study has been terminated and the previously scheduled feasibility phase studies will not be undertaken.

COLUMBIA RIVER AND TRIBUTARIES STUDY

Mr. Bevill. Please describe how the Regional Forum, which has been established for evaluation of regional water issues under the Columbia River and Tributaries Study, will operate.

General Stevens. Sir, the Regional Forum is a public involvement and inter-agency coordination process that is being established to address issues associated with the current and long-term operation of the Columbia River System. This forum is being established to facilitate the resolution of competing demands on the system and to provide an operational framework for the extension of existing agreements among the Federal agencies and regional interests. The Bureau of Reclamation, Bonneville Power Administration and the Corps are the primary Federal agencies involved. We anticipate that the Northwest Power Planning Council and the other affected Federal agencies will also be actively involved in this effort.

Mr. Bevill. The justification material indicates that the completion date for the Columbia River and Tributaries System Plan is November 1992. Why will no funds be required after FY 1991 to complete that work?

General Stevens. Sir, funds may be required under this study authority after FY 1991 to complete studies associated with the review of the Columbia River System operation. Discussions are underway between representatives of the Bureau of Reclamation, the Bonneville Power Administration, and the Corps to determine the scope of studies needed to address issues associated with existing agreements in the Columbia River System. We are currently exploring the proper balance between General Investigations and Operation and Maintenance funds necessary to complete the Corps activities.

OWYHEE RIVER BASIN INTERIM OF THE UPPER SNAKE RIVER AND TRIBUTARIES STUDY

Mr. Bevill. Last year's budget justification stated that completion of the Owyhee River Basin interim of the Upper Snake River and Tributaries Study had been delayed from March 1989 to March 1990. This year you state that an unfavorable preliminary report was completed in January 1989. Please explain the apparent

discrepancy.

General Stevens. Sir, subsequent to our submission of the FY 1990 program request, Walla Walla District determined that potential projects in the Owyhee River Basin would be economically infeasible.

JACKSON HOLE, WYOMING, SNAKE RIVER LEVEES

Mr. Bevill. What is the purpose of the study of operation and maintenance of Jackson Hole, Wyoming, Snake River levees since Federal maintenance has already been authorized?

General Stevens. Sir, the study of operation and maintenance of the Jackson Hole, Wyoming, Snake River Levees is to determine the scope of the Federal maintenance program, to complete the necessary NEPA documentation and to negotiate a local cooperation agreement with local interests. We are also investigating the feasibility of improving or extending existing levees.

LACONNER WASHINGTON, PROJECT

Mr. Bevill. The Committee understands that you are not proceeding with preconstruction engineering and design of the LaConner, Washington, project. What is your justification for not proceeding with this project which was authorized in P.L. 99-662?

General Stevens. Sir, the LaConner, Washington, Project would provide protection from streambank erosion. Work on this project has not proceeded. It is not in accordnace with Administration priorities and no generic Federal responsibility for single purpose streambank erosion control has been established in legislation.

COLUMBIA RIVER TREATY FISHING ACCESS SITES

Mr. Bevill. What is your estimate of the cost involved in implementation of the Columbia River Treaty Fishing Access Sites project? Is there any cost sharing involved in this project?

General Stevens. Sir, the preconstruction engineering and design studies in our FY 91 program request would be used to develop the scope of the recommended project features and to prepare a baseline cost estimate. If there is a requirement to replace existing recreation facilities, cost sharing may be required.

MUD LAKE, IDAHO AND PALOUSE RIVER TRIBUTARIES, IDAHO

Mr. Bevill. What is the status of the Mud Lake, Idaho, and Palouse River and Tributaries, Idaho, studies?

General Stevens. Sir, the reconnaissance level studies have determined that there is sufficient Federal interest to undertake feasibility phase studies at Mud Lake, Idaho. However, local interests have indicated that they will not be capable of providing

SUMMARIZED FINANCIAL DATA (Cont'd)

		Accum.% of Est Federal Cost
Allocations to 30 September 1989	$18,405,000	
Conference Allowance for FY 1990	3,600,000	
Allocation for FY 1990	3,053,128 1/	
Allocations through FY 1990	21,458,128	65
Allocation Requested for FY 1991	3,700,000	76
Scheduled Balance to Complete after FY 1991	7,741,872	
Unscheduled Balance to Complete after FY 1991	0	

PHYSICAL DATA (EXISTING PROJECT)

Powerhouse: Number of completed bays initial installation - 16; Number of skeleton bays initial installation - 4; Generator nameplate rating - 135,000 kw; Initial plant capacity - 2,160,000 kw.

1/ Reflects $170,872 sequestered in accordance with the Gramm-Rudman-Hollings Act, and $376,000 reprogrammed from the project.

JUSTIFICATION: The importance of John Day Dam to the northwest regional power pool is far greater than may be inferred from its 7 percent share of total NW system output or its 18% share of Corps of Engineers regional production. Because of its large capacity, relative freedom from operating constraints, and strategic location with respect to load centers, transmission lines, and to other major hydroelectric projects, John Day Dam is probably the most important project as far as control of the regional power system is concerned. The North Pacific Division has been continuously monitoring the generator availability rates for all of the Corps of Engineers hydroelectric projects in the Pacific Northwest since 1955. Because all of these projects utilize basically the same maintenance program and all report unit availability based upon identical criteria, the availability datum is extremely useful for projected abnormal situations. The yearly average availability from 1975 to 1986 was 91.5 percent. In 1984, John Day unit availability feel to an all-time low of approximately 78.1 percent, substantially affecting John Day's ability to provide automatic generation control and spinning reserve for the Northwest Power Pool. To raise John Day's availability rate and maintain optimum availability of 95 percent requires major rehabilitation of the generating units and appurtenant support equipment. It is essential that the rehabilitation program be systematically carried to completion. Failure to perform major rehabilitation will promote deterioration of powerhouse availability. Operation of the power plant for peaking as well as for balancing regional power load variations requires rapid control of generating units to compensate for changing load and voltage conditions. Frequent unit loading and unloading have taxed the turbines and generators in excess of their original design capability. As an example, the number of circuit breakers' "close-open" operations has increased from 14 per day in 1972 to 27 per day in 1981; this not only creates additional cycling on the circuit breakers themselves, but it is also indicative of additional thermal cycling and wear and tear on the turbines, generators, and related features of the generating system. Because the original design did not fully anticipate these additional demands on the generating units, defects are now appearing in them

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JUSTIFICATION (Cont'd):
and outage problems have increased, lowering unit availability. A case in point has been turbine blade servomotor piston cap failures. Unit outages resulting from this defect have accounted for much of the reduced unit availability. Anticipated generator stator winding failures in the future would decrease generating availability to below 70 percent.

FISCAL YEAR 1991: The requested amount of $3,700,000 will be applied as follows:

Continue Powerhouse Rehabilitation	$3,436,000
Engineering and Design	102,000
Construction Management	162,000
Total	$3,700,000

STATUS OF LOCAL COOPERATION: None required for major rehabilitation.

NON-FEDERAL COSTS: Costs allocated to power, presently estimated at $32,900,000, are reimbursable. This project is a part of the Federal Columbia River power system. Bonneville Power Administration (BPA), the federal marketing agency, establishes system rate levels adequate to recover all capital investment cost for generating projects (including Corps generating projects) within 50-year period and to repay annual OM&R and interest expenses. BPA submits annual financial statements to Congress, as required by law, on repayment and periodically recommends rate adjustment as required for meeting repayment obligations.

COMPARISON OF FEDERAL COST ESTIMATE: The current federal cost estimate of $32,900,000 is an increase of $4,200,000 from the latest estimate ($28,700,000) presented to Congress (FY 1990). This change includes the following items:

Item	Amount
Price Escalation on Construction Features	$ 203,000
Post Contract Award and Other Estimating Adjustments	3,997,000
Total	$ 4,200,000

STATUS OF ENVIRONMENTAL IMPACT STATEMENT: The final environmental impact statement was filed with the Council on Environmental Quality on 29 July 1975.

OTHER INFORMATION: Initial construction of the powerhouse was completed in 1971. A reconnaissance report, turbine-generator equipment studies, and initial engineering and design and construction efforts were initially financed by Operation and Maintenance, General in FY 1982. Funds to initiate major powerhouse rehabilitation under Operation and Maintenance, General were provided in FY 1985. Each unit outage will be approximately 34 weeks. Overlapping outages of two units will occur for approximately one month as any one unit completes rehabilitation.

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the necessary local share of the feasibility study costs until 1992. The reconnaissance level studies are being terminated and feasibility studies will be considered under our continuing authorities program when local interests want to resume the studies.

The Palouse River and Tributaries, Idaho reconnaissance studies determined that potential flood control measures would be economically infeasible and further studies have been terminated.

HOMER SPIT, ALASKA, PROJECT

Mr. Bevill. Why have no funds been requested to continue preconstruction engineering and design for the Homer Spit, Alaska, project?

General Stevens. Sir, the Homer Spit, Alaska project will be eligible for preconstruction engineering and design upon completion of the feasibility report, which is scheduled for the end of this month. Continuation of preconstruction activities will be undertaken at that time with available funds.

ST. PAUL HARBOR, ALASKA, PROJECT

Mr. Bevill. What is the status of the St. Paul Harbor, Alaska, project?

General Stevens. Sir, the general navigation features were completed by the City of St. Paul on 29 November 1989. Formal acceptance of the general navigation features and reimbursement to the City of St. Paul are scheduled for March 1990. The City of St. Paul expects to complete the support facilities including dockage by November 1990.

GRAYS HARBOR, WASHINGTON, PROJECT

Mr. Bevill. Has the Local Cooperation Agreement been signed for the Grays Harbor, Washington, project?

General Stevens. Sir, the Local Cooperation Agreement for the Grays Harbor Project was signed on February 16, 1990.

MUD MOUNTAIN DAM, WASHINGTON, PROJECT

Mr. Bevill. Please describe the design changes that have resulted in an $11,220,000 increase in the cost of the Mud Mountain Dam, Washington, project. Why has the completion date for the project slipped one year?

General Stevens. Sir, design changes are related to relocation of the intake tower. This relocation was necessary to allow flood control operation of the project during construction and to improve construction ability. A separate contract for a seepage cutoff

wall in the main dam embankment has been delayed one year because of technical problems. This has in turn delayed the project because of limited site accessibility for construction.

BONNEVILLE SECOND POWERHOUSE

Mr. Bevill. What is the status of your efforts to improve juvenile fish bypass efficiency at the Bonneville Second Powerhouse?

General Stevens. Sir, we are preparing to install additional turbine intake extensions and lowered travelling screens. These improvements will be evaluated in 1991. The data gathered from these tests will be used to determine if additional measures would be justified and to formulate an operating plan for 1991 and future years.

CHIEF JOSEPH DAM, WASHINGTON

Mr. Bevill. Please provide the Committee with a status report on the turbine efficiency modification at Chief Joseph Dam, Washington.

General Stevens. The prime contractor is presently correcting turbine performance deficiencies. Field work is expected to begin in March 1990 and an overall completion is expected in mid-1994.

COLUMBIA RIVER JUVENILE FISH MITIGATION PROJECT

Mr. Bevill. Your justification material states that the extent of justified mitigation for Corps dams on the Mainstem of the Columbia and Snake Rivers has never been evaluated. What is the basis for the estimated cost of $139,000,000 for the Columbia River Juvenile Fish Migration project?

General Stevens. Sir, the $139,000,000 for the Columbia River Juvenile Fish Mitigation is our current estimate for the construction of those mitigation measures that have been accepted as incrementally justified mitigation. It also includes an allowance of $2 million to conduct a detailed mitigation analysis.

Mr. Bevill. Have you had any discussion with the Bonneville Power Administration about up-front financing for the Columbia River Juvenile Fish Migration project since almost all projected costs are allocable to power?

General Stevens. Sir, potential up-front financing of the Juvenile Fish Mitigation Project was discussed with the Bonneville Power Administration, other regional interests and with the Office of Management and Budget. Ultimately, it was decided to continue the traditional method of financing with Corps appropriations and reimbursement from power revenues. Therefore, funds are requested for our Fiscal year 1991 program to continue work on the design and

construction of the justified features.

LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PROJECT

Mr. Bevill. The budget justification material states that the Lower Snake River Fish and Wildlife Compensation project will provide compensation for losses to the fish and wildlife resources that were caused by construction and operation of the four projects on the Lower Snake River. Why is additional mitigation being considered under the Columbia River Juvenile Fish Mitigation project?

General Stevens. Sir, the Lower Snake River Fish and Wildlife Compensation Plan was formulated in the 1970's. That plan is compensating for fish losses caused by the four dams on the Lower Snake River through the provision of fish hatcheries. However, no detailed mitigation analysis of the losses caused by the four projects on the Lower Columbia has ever been made. Furthermore, we recognize that mitigation is required and that the measures included in our request are incrementally justified measures contributing to the mitigation that will ultimately be determined necessary. In view of fish screen technology at the time of formulation of the Lower Snake Plan, the plan did not include juvenile fish bypass facilities as direct measures for mitigating fish losses at the dams. While the facilities we are implementing are primarily intended as compensation for the Lower Columbia projects, the facilities also will improve survival of all stocks, including hatchery and naturally spawned fish.

Mr. Bevill. The FY 1990 Energy and Water Development Appropriations Act provided an additional $861,000 for the Lower Snake River Fish and Wildlife Compensation project for the wildlife component of the plan to purchase off-project lands in Washington. Is that work proceeding as directed by the Congress?

General Stevens. Yes, sir. Our current schedule is to complete the acquisition of lands by September 1994.

UMPQUA RIVER AND YAQUINA BAY AND HARBOR, OREGON, PROJECTS

Mr. Bevill. What is the reason for the large increase in maintenance dredging requirements for the Umpqua River and Yaquina Bay and Harbor, Oregon, projects?

General Stevens. Sir, the maintenance dredging cost for the Umpqua River will be greater in FY 91 due to increases in dredging quantities in the bar channel and at Winchester Bay based on hydrographic surveys and historical knowledge of site conditions. For Yaquina Bay, the cost increase is also due to an anticipated large quantity increase. We normally do major dredging at this site on about a two or three year cycle, depending on need.

JOHN DAY POWER HOUSE

Mr. Bevill. What is the status of the John Day Powerhouse major rehabilitation?

General Stevens. Sir, under the present contract, turbine modification/generator rewind work has been completed on 8 of 11 units and all 11 are scheduled to be complete in FY 91. Design is underway to finish turbine modification/generator rewind work on the remaining 5 units. Control system and generator breaker improvements are ongoing.

MOUNT ST. HELENS SEDIMENT CONTROL PROJECT

Mr. Bevill. What is the status of the Mt. St. Helens Sediment Control project?

General Stevens. Sir, the major features of the Sediment Control Project are essentially complete. The sediment retention structure is complete and in operation, the fish trapping facility was transferred to the State of Washington for operation in September 1989 and channel dredging was completed in December 1989. A follow-on contract for minor remaining work at the sediment retention sturcture will be awarded in FY 90. All scheduled work will be completed with available funds. Monitoring of the system will continue to document the amount of sediment and to assure 100-year flood protection to downstream areas.

QUESTIONS SUBMITTED BY CONGRESSMAN AUCOIN

TILLAMOOK NORTH JETTY, OREGON

Question: General Stevens, last year at this hearing we discussed the problems at the Tillamook North Jetty and you indicated a reconnaissance study would be completed at that location in 1989. Will you report the findings of that study to the Committee?

Answer: Sir, the study was delayed to allow time for a full economic evaluation of the project. We are working closely with the Portland District to finalize this report within the next 2 to 3 months.

Question: The Corps recommends capping the jetty to prevent further erosion at this point, rather than restoring it, is that correct?

Answer: Sir, at this point that appears to be the best option.

Question: It is my understanding that the local Coast Guard office in Tillamook is concerned that simply capping the jetty will not reduce the navigational hazards involved here. Is that your understanding too?

Answer: Sir, our current surveys and studies indicate that capping will provide a safe project from a navigational point of view.

Question: What is the difference in cost between capping the jetty and restoring the 425-feet that have been lost over the last eleven years?

Answer: Sir, the difference in cost is approximately $5 million.

THE DALLES DAM, OR

Question: General, last year you experienced a breakdown at The Dalles Dam which put a crimp in your power generating capacity in the Northwest. Would you describe the situation for me?

Answer: Sir, Unit Number 5 experienced a generator failure in February 1989, several days before an arctic cold front caused record power usage. The unit outage did not result in lost revenues or spilled water. There was no reported impact to the overall operation of the electrical system although BPA lost some small amount of flexibility.

Question: What is the likelihood that you might have another significant generating shutdown?

Answer: Sir, performance and maintenance measurements indicate that the remaining equipment is not in any greater danger of failure than in earlier years. We continue preventative

maintenance and will attempt to anticipate the need for equipment replacement prior to failure.

Question: And if you had one, what would be the implication on the power supply for the region?

Answer: Sir, the Federal power system in the Northwest is so large that a single unit outage would not have significant effect on the region's power needs. To put this in perspective, consider that the North Pacific Division operates 18 hydropower projects with a total of 153 generating units.

Question: Does your operations and maintenance budget request for Fiscal Year 1991 address this problem?

Answer: Yes sir. The operations and maintenance budget provides for continual preventative maintenance activity and replacement or repair of generating equipment on a priority basis.

Question: General, I realize that this is a large, long-term problem. Could you provide the Committee, for the record if necessary, with information what it would take to get into a more comfortable maintenance position over the next few years?

Answer: Yes sir. Hydropower maintenance is a long-term challenge we face. We will strive to maintain a high powerplant unit availability rate in the North Pacific Division. We are currently working on plans and specifications for a spare winding at The Dalles. Concurrently, reconnaissance reports are being prepared for a comprehensive program to replace generator windings at The Dalles. A similar report is being prepared for work at the Bonneville First Powerhouse. Additionally, the North Pacific Division is working with our headquarters to develop a management system to assist all levels of management in determining where best to apply available maintenance dollars to assure a productive and reliable hydropower system.

JUVENILE FISH BYPASS

Question: General, it is good to see the budget request for juvenile fish bypass facilities at Columbia and Snake River dams. What is the Crops' full capability for implementing the fish mitigation program on all Columbia Snake River dams in FY 1991?

Answer: Sir, the budget request of $15.8 million is our full capability in FY 1991.

Question: In the FY 1991 budget request, what funds are allocated for general studies, what funds are recommended for site-specific planning and design, and what funds are proposed for actual construction?

Answer: Sir, $1 million would be used for mitigation studies; $4.8 million would be applied to site-specific design activities; and

$10 million would be allocated to construction.

SCHULTZ BAR

Question: General Stevens, how does the present channel depth at Schultz Bar, which is about 30 miles below the Lower Granite Dam compare with the congressionally authorized depth?

Answer: The authorized channel depth of 14-feet below elevation 633 feet MSL is not being met. However, at least 14-feet of water depth is currently being made available in the main channel by regulating the Little Goose Dam pool elevation. Some high spots are present in the fillet area of the turn at Schultz Bar even with the raised pool.

Question: Why have funds not been requested to maintain the authorized depth?

Answer: Sir, our FY 1990 program did not include dredging at Schultz Bar due to higher priority work within the Division.

Question: If funds were available, in either FY 1990 or FY 1991, when could the Corps dredge at Schultz Bar?

Answer: Sir, dredging at Schultz Bar is restricted to a short period in February and early March due to environmental considerations for fish. It is doubtful that the dredging window could be expanded in 1990 to perform dredging. Dredging in FY 1991 is planned during the late winter.

Question: How much commercial traffic has crossed the bar in recent years?

Answer: Sir, in 1988, approximately 2 1/2 million tons of commodities passed the bar. The five year average is about 2 million tons annually.

LOWER COLUMBIA CHANNEL DEEPENING STUDY

Question: Please provide for the record an update on the investigation examining deepening of the lower Columbia River channel.

Answer: Sir, the reconnaissance phase studies were initiated in January and are scheduled to be completed in December 1990. These studies, which are in the initial stages, will address alternatives for deepening and widening the Columbia River navigation channel.

Question: I understand the budget request includes $100,000 to continue this study. Does this keep the study on a fast tract, or can work be expedited with additional funds?

Answer: Sir, our FY 91 Program Request will keep this study on

schedule and we have no additional requirement.

SMALL PORT O&M DREDGING

Question: General, does the budget request fund all anticipated needs for maintenance dredging at all Oregon ports? If not, what are the additional funding requirements, as you can anticipate at this time?

Answer: The budget requested is adequate to provide anticipated maintenance dredging of all Oregon Coastal ports.

QUESTIONS SUBMITTED BY CONGRESSMAN CONTE

DEVELOPMENT OF FISH BYPASS SYSTEMS

Question: Please estimate the percentage of Division resources dedicated to the development of fish bypass systems, hatcheries and other juvenile fish mitigation measures in Fiscal Year 1991. How does this level of activity compare to that of five years ago? Ten years ago?

Answer: Sir, in FY 1991, about 11 percent of the North Pacific Division Civil Works program is scheduled for juvenile fish mitigation development. In FY 1986 and FY 1981, the percentages were about 8 percent and 13 percent, respectively.

COLUMBIA RIVER TREATY FISHING ACCESS

Question: Please describe the Indian Treaty fishing access facilities being developed by the Division.

Answer: Sir, Title IV of PL 100-581 provides for development of 21 new sites on Bonneville, The Dalles, and John Day pools; acquisition and the development of six additional sites on the Bonneville Pool; and improvement of existing sites for treaty fishing use. While the authorization referred to specific areas, no detailed plan exists for the development and implementation of project features at the sites. The program request for FY 1991 would be used to develop the scope of the project and intiate design.

FISCAL YEAR 1990 SEQUESTRATION O&M IMPACTS

Question: Please describe and quantify the impacts of sequestration on your Fiscal Year 1990 operating program.

Answer: Sir, our FY 90 O&M Appropriation was reduced by 1.4 percent by the President's final sequestration order under the Gramm-Rudman-Hollings law. The total sequestration for the North Pacific Division was about $2.1 million which would have a small effect on the operation and maintenance program within the Division.

ALASKA OIL SPILL RECOVERY

Question: Please describe the oil recovery techniques employed by the Division when it assisted in the clean-up of the Exxon Valdez oil spill last spring. Was the Corps reimbursed by other agencies or non-Federal sources for services rendered in connection with the clean-up? If so, please detail such reimbursements for the record. If not, please identify the resources used to finance the Corps operations.

Answer: Two of the Corps Minimum Fleet hopper dredges, the ESSAYONS and the YAQUINA, were dispatched to assist in the oil

recovery operations resulting from the EXXON VALDEZ oil spill. These dredges proved to be extremely effective in quickly recovering the oily product from the water surface in large quantities. After some experimentation, it was found that the most effective way to remove oil from the water by a dredge was to invert the draghead on the dragarm, and place the draghead just beneath the floating oil product. Removal operations became even more effective when oil containment booms were pulled through the water to corral the oily products in large quantities. These booms were then brought to the dredge for its recovery.

The two Minimum Fleet dredges worked in various locations in and around Prince William Sound in Alaska, and recovered nearly 7,000 barrels of oil.

The Corps has not yet received reimbursement for its efforts in the Alaskan Oil Spill Cleanup operations.

Alaska District was reimbursed for $449,700 from the Flood Control and Coastal Emergencies for the operation of the Alaska District Emergency Operations Center. It is expected this money will be refunded when the Corps is reimbursed by Exxon.

All costs for the Alaskan Oil Spill Recovery operations are currently in a deferred account and will remain there until reimbursement is received.

DRUG PREVENTION PROGRAM

Question: Does the Division conduct any activities designed to reduce, eliminate or prevent the use of drugs? Please describe any such activities and quantify their costs and impacts.

Answer: Sir, we maintain employee assistance programs, which are responsive to a variety of employee problems, including drug abuse. Of the 90 employees using this program last year in Portland and Seattle District, 11 were related to alcohol and drug abuse. In addition, drug abuse prevention is addressed in employee news letters and health maintenance programs. Our dredge personnel are subject to drug testing under Coast Guard regulations.

CLOSING

Mr. BEVILL. Thank you very much for your fine testimony.
General STEVENS. Thank you, Mr. Chairman.

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